PB81-234874

Applying for a Permit to Destroy PCB Waste Oil
Volume II. Documentation

GCA Corp.
Bedford, MA

Prepared for

Industrial Environmental Research Lab.
Research Triangle Park, NC

Mar 81

U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

EPA-600/2-81-033b
March 1981

PB81-234874

EPA

Research and Development

APPLYING FOR A PERMIT TO DESTROY PCB WASTE OIL

Vol. II. Documentation

Prepared for

Office of Toxic Substances

Prepared by

Industrial Environmental Research
Laboratory
Research Triangle Park NC 27711

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TECHNICAL REPORT DATA

(Please read Instructions on the reverse before completing)

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16. ABSTRACT

The two-volume report documents the permitting process followed by the State of Michigan before allowing a trial destruction burn of polychlorinated biphenals (PCBs) at the General Motors (GM) Chevrolet Bay City plant. Volume I includes a chronology of events and a matrix depicting the interaction of federal, state, and local government agencies and GM in the permitting process. The matrix presents a list of who requested and who responded to each need for additional information. An analysis of the significance of interactions, including interagency communications, private sector/public communication, and the flow and quality of information developed, is provided. Finally, recommendations that are based on this permit application process and that might facilitate subsequent applications for burns of hazardous materials are made. Volume II contains the relevant documents summarized in the Volume I lists. Recommendations include: (1) identification of all groups that may play an important role in future permitting processes; (2) contacting these groups by letter or in person; (3) developing a relationship of cooperation with these groups; (4) determining the level of support for proposed action; and (5) determining the necessary course of action based on the level of support.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group	
Pollution	Incinerators	Pollution Control	13B	
Chlorine Aromatic Compounds	Waste Disposal	Stationary Sources		
	Boilers			
Biphenyl	Licenses	Polychlorinated Biphenyls (PCBs)	07C	13A
Insulating Oil	Toxicity			05D
Combustion	Communicating	Permitting Process	11H	06T
		Waste Oil	21B	15E

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Applying for a Permit to Destroy PCB Waste Oil

Volume II. Documentation

by

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GCA Corporation
GCA/Technology Division
Bedford, Massachusetts

Contract No. 68-02-2607
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EPA Project Officer
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Office of Environmental Engineering and Technology
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Prepared for:

U.S. Environmental Protection Agency
Office of Research and Development
Washington, D.C. 20460

ABSTRACT

This report documents the permitting process followed by the State of Michigan before allowing a trial destruction burn of polychlorinated biphenyls (PCBs) at the General Motors (GM) Chevrolet Bay City plant. The report is divided into two volumes. Volume I includes a chronology of events and a matrix depicting the interaction of Federal, state, and local government agencies and GM in the permitting process. The matrix presents a list of who requested and who responded to each need for additional information. An analysis of the significance of interactions, including interagency communications, private sector-public communication, and the flow and quality of information developed, is provided. Finally, recommendations that are based on this permit application process and that might facilitate subsequent permit applications for burns of hazardous materials are made.

Volume II of this report contains the relevant documents summarized in the lists presented in Volume I. Copies of Volume II may be obtained on request from EPA.

This work was performed under Contract No. 68-02-2607, Task Order No. 33 during the period May 1979 through December 1979.

CONTENTS

Abstract ii

Appendices

A. Chronicle of Events 1
B. Relevant Documents 8
C. Press Coverage of Permit Application Process 181

APPENDIX A

CHRONICLE OF EVENTS

		Page No.
1974-1977	PCB-Waste Oil Burned at Chevy-Bay City	*
3/5/76	Memo from U.S. Government Recalculation of PCB Air Emissions	86
7/14/77	DNR Denied Chevrolet Bay City Exemption Application	*
9/02/77	DNR Stopped PCB Waste Oil Burning	*
9/06/77	Chevrolet-Bay City Applied for Permit	*
11/03/77	Chevrolet-Bay City Withdrew Permit	*
2/17/78	EPA Issued PCB Regulations	*
3/27/78	Chevrolet-Bay City Issued Pollution Incident Prevention Plan Including PCB Handling and Disposal Procedures	8 †
4/17/78	Chevrolet-Bay City Applied for Permit to Burn Reclaimed Oils	30
5/10/78	SS. Unit Michigan DNR Notified Permit Unit that PCB Test on May 17, 1976 was Unacceptable	38
6/02/78	Chevrolet-Bay City was Notified of DNR Recommendation to Deny Permit	40
6/20/78	DNR Staff Activity Report on Chevrolet-Bay City Issued	41
6/15/78	Chevrolet-Bay City Requested Withdrawal of Permit Application	43
6/28/78	DNR Notified Chevrolet-Bay City of 30-Day Limit to Appeal Voiding of Permit Application	44
11/02/78	Letter from Potter (GM) to Costle (U.S. EPA) Recommending that EPA Choose Incineration Facilities	45
1/11/79	Ontario Ministry of the Environment Issued Press Release on Release of Mississauga Report	47
1/79	Ontario Ministry of the Environment Released Highlights of the Ontario Research Foundation Report	49

---

*Documents not contained in this report.

†See Appendix D.

		Page No.	
1/79	Chronology Concerning Chevrolet-Bay City's 1979 Permit Application	†	
4/06/79	EPA Requested GM Boiler for PCB Burn	†	
4/18/79	Work Assignment Issued for GCA to Test PCB Emissions	†	
4/18/79	Meeting of EPA, GM and GCA Held to Discuss Testing of PCB Burning at GM	52	52
4/25/79	GCA Work Plan Sent to GM and U.S. EPA	55	55
5/01/79	GCA Sent Revised Project Schedule to GM and EPA	57	7
5/23,24/79	Meeting of EPA, GM and GCA Held to Discuss Necessary Conditions for Permit Issuance	60	60
5/29/79	GM Sent Air Use Permit Application to EPA	63	63
5/31/79	EPA PCB Regulation Updated	*	
5/31/79	GCA Did Pretest Survey of Site at Bay City	*	
6/06/79	Environmental Analysis Assessment Prepared	65	5
6/11/79	Meeting of GCA, GM and EPA Held in Washington, D.C. to Refine GCA Environmental Report on Burning PCBs at Chevrolet-Bay City	76	6
6/15/79	GCA Notified EPA of Revised Man-Hours Estimated	77	7
6/18/79	Meteorological Model Revised to Include Deposition Test Plan of PCBs	†	
6/22/79	GCA Mailed Final Draft of Test Plan to EPA and Chevrolet-Bay City	78	8
6/27/79	Chevrolet-Bay City Applied for Air Use Permit to Michigan DNR	†	
7/06/79	Chevrolet-Bay City Sent EPA Air Use Permit Application	81	1
7/23/79	John McGuire (Regional Administrator) requested support of Howard A. Tanner (Director, Michigan DNR) in Testing PCB Emissions and to classify as not a "Major State Action" so that no Environmental Impact Statement would be necessary	82	2
7/24/79	Meeting of GCA, GM, EPA and DNR in Bay City, Michigan	84	4

		Page No.
7/27/79	U.S. EPA Sent Michigan DNR Summary of Data on PCB Levels in Ambient Air	85
7/27/79	Chevrolet-Bay City Mailed Letter to DNR Regarding Information Requested	97
8/09/79	Compass Directions and Distance to Property Line Obtained from Al Garwick	*
8/14/79	Meteorological Model Revised PCB Concentrations at GM Property Line	*
8/15/79	Information on Distance to Nearest Residential Areas from Al Garwick	*
8/16/79	Meteorological Model Revised to Include PCB Calculations to Nearest Residential Area	*
8/17/79	GCA sent data Requested by George Su to Michigan DNR	99
8/30/79	Meteorological Model Revised to Include Time Averaged PCB Concentration from 2 Minute Full Release	*
9/06/79	GCA Sent John Vial Written Confirmation of ASHA Standards	100
9/10/79	Conversation Between John Vial and Al Garwick Concerning 21 or 30 Day Comment Period	*
9/13/79	Conversation Between Sanchez and Garwick Requesting Notification to Region V of Proposed Burn Date and Reference to the July 6 Letter of Hal Snyder	*
9/14/79	Memo Given to A. Engelman (GCA) on Need for Additional Man-Hours for Permit Application and Meteorological Modeling	105
9/18/79	Chevrolet-Bay City Sent EPA Region V Letter Requesting Verification of October 22 Burn Data	106
9/19/79	Michigan Air Pollution Control Commission Issued Notice of Public Comment Through October 15 and Public Hearing October 16	107
9/20/79	Included PCB Concentrations at Plume Sector Cutoff Points in Meteorological Model	†

		Page No.
9/20/79	DNR Proposed Conditional Approval	108
9/28/79	Michigan Air Pollution Control Commission Announced Public Comment Through October 15 and Public Hearing on October 11 and October 16	111
9/28/79	The Bay City Times "Chevy Gets OK to Burn PCB Oil Contaminates"	†
9/28/79	DNR Notified Chevrolet-Bay City of Additional Public Hearing	120
10/03/79	The Bay City Times "Operators Label Boiler Unsafe for Burning PCB"	†
10/09/79	Position Paper Released Describing PCB Burn Including Action Taken by GM, GCA and EPA	*
10/09/79	Manistique Pioneer-Tribune "Air Commission to Hear PCB Incineration Proposal"	†
10/10/79	The Bay City Times - Notification Requested UAQ Members to Attend November 12 Commission Meeting	†
10/10/79	New Views (GM) Released Information to Chevrolet-Bay City Employees on Burning	†
10/11/79	Meeting in Bay City-Public Hearing	121
10/11/79	The Bay City Times "Hearing Today on Chevrolet Request to Burn PCB"	†
10/11/79	The Detroit News "GM Wants to Burn PCB at Chevy Site"	†
10/11/79	The Flint Journal "EPA Backs Requests to Burn Toxic PCB"	†
10/12/79	The Bay City Times "Union Workers, City Official Protest PCB Test Burn"	†
10/15/79	Ontario Ministry of the Environment Provided EPA with Their Protocol for Incinerating PCBs in a Cement Kiln	†
10/16/79	Meeting in Bay City- Commission Meeting	†
10/16/79	The Bay City Times "PCB Burn Decision Delayed"	†
10/16/79	Unknown "Group Condemns PCB Burning"	†
10/16/79	DNR Requested Delay from MAPCC	*

		Page No.
10/16/79	DNR Staff Activity Report on Chevrolet-Bay City Issued	112
10/16/79	Supplement to State of Michigan Staff Activity Report	123
10/16/79	David Sanchez (U.S. EPA) in Letter to Diane Carlson (DNR) GM Burning Necessary for Tests to be Included in a Technical Paper Presentation in June 1980	125
10/16/79	Mt. Clemens Macomb Daily "PCB Disposal"	†
10/16/79	South Haven Daily Tribune "ALA Against PCB Burn"	†
10/17/79	GCA Memo, Information Submitted as Part of Public Hearing - PCB Burning	122
10/17/79	The Bay City Times "Bay City 'Show' Gets Results on PCB Plan"	†
10/17/79	The Hillside Daily News - "Burning of PCB Oil Delayed"	†
10/17/79	The Detroit News "State Delays Test - Burning of PCB"	†
10/17/79	St. Joseph Herald Palladium "State Seeking Answers Before PCB (sic) Is Burned"	†
10/17/79	Grand Rapids Press "PCB Buildup at Issue in GM Bid to Burn Oil"	†
10/22/79	U.S. EPA Sent GM OK to Burn PCBs	128
10/25/79	John Vial (DNR) Sent Chevrolet-Bay City List of Questions from the Public Hearings to be Answered	130
11/01/79	GM Prepared "Response to News Media Inquirites on the Medical Examinations of Employees at Chevrolet's Bay City Plant, Site of the Proposed PCB Test Burn"	†
11/01/79	The Detroit News Editorial "PCB's are Not Easy to Dump"	†
11/02/79	The Bay City Times "Bay City Chevrolet to Test Workers for PCB Poisoning"	†
11/02/79	The Bay City Times "Canadian Officials to View Bay City Chevrolet's PCB Burn"	†
11/08/79	DNR Letter to Concerned Citizens Included Staff Summary and Announced November 20 Meeting	135
11/08/79	DNR Notified GM of Meeting on November 20; Agenda Included	151

		Page No.
11/08/79	Proposed Supplement to Permit Application Drafted by DNR	136
11/10/79	The Bay City Times Letter to the Editor "PCB Test Burn Should Concern the Community"	†
11/12/79	Bay City Commission Opposed the Burn	*
11/13/79	The Bay City Times "Commission Opposes Chevy Waste Oil Test Burn"	†
11/13/79	Bay County Commission Asked for Delay of Burn	*
11/14/79	The Bay City Times "County Board Opposes Chevy's PCB Test Burn"	†
11/16/79	DNR Notified GM that Application for Permit was Voided Due to GM's Request to Withdraw Pending Further Investigation	155
11/16/79	The Bay City Times "Expect Month's Delay for PCB Burn Here"	†
11/16/79	Meteorological Model Revised to Reflect Winter Conditions	159
11/20/79	Commission Meeting in Lansing, Michigan. Gm Presented Their Position - Requested Delay Until December 18 Meeting. A Question and Answer Period Followed	152
11/20/79	Addendum to DNR Staff Activity Report of October 16 Includes Revised Special Conditions	154
11/20/79	The Bay City Times "Delay Expected in Decision on PCB Burn"	†
11/21/79	The Bay City Times "PCB Test-Burn Proposal: GM Gets Month to Sell City on Plan, Bay Environment Office Favors It"	†
11/26/79	GM Responded to DNR Answering Questions from Mr. Morton Sterling	166
11/27/79	The Bay City Times "GM Woos City on PCB Burn"	†
11/27/79	GCA Communicated with U.S. EPA (Sanchez) Regarding Report of Application Process	*
11/28/79	GM Letter to U.S. EPA (Sanchez) Addressed Test Burn Date in 1980	173
11/28/79	PCB Blood Serum Results Received	†

		Page No.	
11/28/79	Ontario Ministry of Environment Published Fact Sheet on PCB's Stating That They Have Found it is Safe to Burn PCBs	*	
11/30/79	Results of PCB Blood Tests Released to the Press	*	
12/01/79	*The Bay City Times* "Local Chevy Workers PCB Levels Up, But Within Average Range"	†	
12/01/79	*The Bay City Times* "Laws Regulating Toxic Chemicals are Riddled with Loopholes" on Talk by William Cooper	†	
12/06/79	Telephone Conversation with John Vial - Discussed TAGA 3000	*	
12/11/79	Telephone Conversation with Tony Fisher. GM Requesting a 60-Day Delay. Stated That It Is Not Necessary for GM, GCA or EPA to Appear at December Hearing of MAPCC	*	
12/11/79	Letter from Koenig (GM) to Rector (DNR) Requested Postponing Decision on the Test Burn Until the February 1980 Commission Meeting	174	74
12/11/79	DNR Posted Notice of Cancellation of Consideration of the GM Permit Application From the Agenda of the December 18 MAPCC Meeting	175	5
12/13/79	*The Bay City Times* "Chevrolet-Bay City Asks State to Delay Test-Burn Decision"	†	
12/14/79	Copy of GM Press Release Sent to DNR	†	

APPENDIX B

RELEVANT DOCUMENTS

POLLUTION INCIDENT PREVENTION PLAN

CHEVROLET - BAY CITY

BAY CITY, MICHIGAN

November 15, 1973

Revised August 9, 1977

Revised March 27, 1978

INDEX

Section I Page 10 - Introduction

Section II Page 10 - Spill Prevention

Section III Page 11 - Spill Containment and Clean-Up

Section IV Page 17 - Notification Requirements and Procedure

Section V Page 19 - In-Plant Material for Clean-Up

Section VI Page 21 - Contractor's List

Section VII - Appendix

"A" - Tank Truck Unlaoding Procedure

"B" - Manufacturers and Distributors of Absorbents

"C" - PCB Handling and Disposal Procedures

Chevrolet - Bay City

Pollution Incident Prevention Plan

I. Introduction

The prevention of spills of oil, fuel and other hazardous materials is far superior to clean-up. Established surveillance procedures are designed to detect, prevent or minimize spills at their source. An accidental discharge caused by operator error or equipment failure could occur, however, during the unloading of bulk shipments of fuel oil, gasoline, or spillages of other hazardous material on the plant premises. These accidental discharges could enter the waterways directly as surface runoff or indirectly through either combined sanitary or storm sewer systems. Some of the types of materials subject to spillage include fuel oil, gasoline, oils, solvents, thinners, paints, acids and cleaners. If spilled they can enter the waterways through yard drains, roof drains, storm sewers in plant, etc.

This plan is issued by Chevrolet-Bay City to establish the procedures to prevent pollution from storage and use areas, manufacturing process, treatment systems and areas for receipt of bulk shipments and to provide prompt containment and clean-up of a spill.

II. Spill Prevention

A. Employe Training

All employes who are involved with handling of oils and other pollutants will be properly instructed. Periodic promotional activities and training of employes will be conducted to maintain awareness of pollution dangers. This will be the responsibility of the Plant Engineering Department.

B. Visual Outfall Inspection Daily

Visual inspection of storm sewer outfalls are conducted daily by maintenance personnel. Irregularity reports on plant installations and storage facilities from Plant Security patrols during off hours will be investigated.

C. Tank Inspection Week

Routine visual inspection of storage tanks, treatment tanks, sump pits within diked areas, processing tanks and piping systems are scheduled weekly by the Maintenance Department. Preventive maintenance will be accomplished to minimize the potential for spillage. Records are maintained by the Maintenance Department.

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II. Spill Prevention Con't:

D. Receiving Procedure

The procedure to be used for tank truck receiving, material, sampling, surveillance, inspection of connections, unloading, etc., is attached as Appendix "A".

E. Inventory

Inventories of oils, solvents, paints, metals, metallic salts, etc., are maintained in our General Stores & Material Departments.
Procurement and disbursement records are available for each material from the named departments.
Daily visual surveillance for effectiveness of oil skimming of the cooling water lagoon will be maintained by Maintenance personnel.
Decant samples from the plating waste treatment system will be analyzed for metal and cyanide content.
Metallic sludges to be hauled by authorized waste haulers will be analyzed for hexavalent chromium and cyanide content.
Weekly composite analysis of metal content in water discharged from the treated plating water holding lagoon will be made.
Records of sludges disposed of by authorized waste haulers will be maintained by the Plant Engineering Department.
Freon extractable oil content of waste discharged from the oil waste treatment system will be determined daily.

F. Containment

The following installations are protected by pits, sumps, dikes, perimeter drains or other means of isolation and containment:

1. Oil Storage.
2. Process Tanks.
3. Storage of paint, thinner, solvent, oil drums, etc.

III. Spill Containment and Clean-Up

a. Spill First Action

The first action to be taken in the event of a spill, or the observation of spillage, is to prevent the pollutant from entering a public sewer or waterway. Immediate action should be taken to prevent further spillage and to confine the spilled material. Following are general instructions to confine spills:

1. On land, use dirt, sand, or other relatively impervious materials to dam the spill to prevent the flow of the material.

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2. Should spillage occur which may result in contamination of a public waterway either directly or indirectly, use any boom arrangement to confine the spillage.

III. Spill Containment and Clean-Up Con't

2a. For oil or other floating materials use hay, straw, or any boom arrangement to confine the spillage.

b. For soluble materials use any means possible to prevent entering waterway or further spread of contaminant.

See Appendix C for special procedures concerning the Siting, Handling, Identifying and Disposing of PCB's and PCB Containing Items.

B. Internal Nitification

In the event of a spill or observation of spillage the following persons should be immediately notified:

		Phone
Plant Engineer - D. R. Koenig	Plant	
	Home	251-684-6951
Plant Metallurgist - E. W. Lee	Plant	
	Home	381-684-2798
Maintenance Supervisor	Plant	261, 262
Plant Security	Plant	366, 335

Information to be supplied as:

1. Location of spillage
2. Type of material
3. Estimated quantity and extent of spillage
4. What measures have been taken to confine and prevent further spillage

C. Spill Confinement

In the event the spillage cannot be contained, the Maintenance Department is to immediately procure the necessary materials to confine the spill. Refer to Appendix B.

D. Manpower Assignment

The responsibility for the supervision of the spill clean-up and manpower assignment will normally be the Maintenance Dept. provided such responsibility is not superceded by regulatory agencies. Supervision of the clean-up of an oil spill in a navigable open waterway is the responsibility of the U.S. Coast Guard. If no Maintenance personnel are in the plant, Plant Protection will provide supervision until Maintenance personnel are available.

E. Disposal of Material

After containment of the spilled fluid, it shall be removed. Material will be subsequently removed and placed in specific containers for proper disposal in accordance with sound evnironmental practices. In no event shall dispersing materials be used unless specifically authorized by regulatory personnel.

F. Receipt of External Notification of Spill

In the event plant personnel receive notification of a spill or contaminant problem from any source external of the plant, the following information is to be requested:

1. Location of spillage.
2. Nature of material.
3. When did observation occur and is it continuous or a slug.
4. Does caller wish to identify himself so we can report on results of our investigation. Can we contact caller for further assistance if we can't locate spill?

IV. Notification Requirements and Procedure

A. Waterway

In the event of an accidental discharge or spill to a public waterway or storm sewer leading to surface waters, the Plant Engineer, or in his absence, the Plant Metallurgist will have the sole authority to notify the appropriate local, state and federal agencies. The Sgt. of the Plant Security, in the absence of the Plant Engineer and his alternate, shall notify said persons at home who will then notify the necessary agencies. Of primary concern and urgency is notification of the U.S. Coast Guard. In the case of an oil spill, such notification shall be accomplished immediately and not to exceed twenty (20) minutes after discovery of spill. Agencies and personnel to be notified are:

1. U. S. Coast Guard Office
   Captain of the Port
   Port, Detroit
   Detroit, Michigan
   Telephone (313) 226-6860

2. Michigan Department of Natural Resources
   Pollution Emergency Allerting System (PEAS)
   Phone 517-373-7660

3. Chevrolet Central Office
   Staff Engineer - Environmental
   G. E. Calhoun
   Telephone 8-535-4619

4. In the event of spillage of highly flammable materials:

   Plant Security Fire Dept.

   Ext. 288

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B. Sanitary and Combined Sewers

In the event of spillage of contaminants to the sanitary or combined sewer in sufficient quantity to potentially cause an upset in the municipal treatment plant, notify the following:

1. Bay City Waste Water Plant
   2905 North Water
   Superintendent
   William Grevel
   Phone 893-5121

2. Chevrolet Central Office
   Staff Engineer - Environmental
   G. E. Calhoun
   Phone 8-535-4619

3. GM Plant and Environmental Engineering
   Environmental Activities Staff Building - 3rd Floor West
   General Motors Technical Center
   Mound Road @ 12 Mile Road
   Warren, Michigan 48090
   Phone 8-535-8605

4. In the event of spillage to a combined sewer, notify additionally:

   Michigan Department of Natural Resources
   Pollution Emergency Allerting System (PEAS)
   Phone 517-373-7660

C. Information Content

The information to be relayed to the contacted agencies is:

1. Name of person reporting.
2. Address of facility.
3. Substance spilled.
4. Estimated quantity.
5. Time spill occurred.
6. Name of waterway receiving spillage.
7. Person to contact and phone number at facility.
8. Answer any question asked by agency to best of ability.

D. Written Reporting

After verbal notification, a written report shall be submitted within five (5) days to the Staff Engineer-Environmental, Chevrolet Central Office. This report should include all items listed in "C" above and an investigative report detailing events leading to the spill and corrective action taken to eliminate reoccurrence.

V. In-Plant Material For Clean-Up

Equipment and materials available for clean-up are kept in storage boxes near the mouth of the RIVER WATER SLIP and near the DISCHARGE **WEIR** of the **RETENTION POND**.

1. Floating boom - (200 ft.).
2. Shovels and hand tools.
3. Sand bags and dam material.
4. Absorbents.

Attachment

U. S. Coast Guard Office, IX District
Captain of the Port
Port Detroit
Detroit, Michigan

Telephone: (313) 226-6860

U. S. Coast Guard Office, IX District
Captain of the Port
Port Muskegon
Muskegon, Michigan

Telephone: 616-759-0951

U. S. Coast Guard Office, IX District
Captain of the Port
Port Sault Ste. Marie
Sault Ste. Marie, Michigan

Telephone: (906) 635-5241

VI. CONTRACTORS LIST

Clean-Up Contractors:

Berlin & Farro Liquid Incineration, Inc.
8322 South Morrish Road
Swartz Creek, Michigan 48473
Telephone: (313) 635-9550

Chem-Met Services, Inc.
18550 Allen Road
Wyandotte, Michigan 48192
Telephone: (313) 282-9250

Hartley and Hartley, Inc.
2370 S. Two Mile Road
Kawkawlin, Michigan 48631
Telephone (313) 684-3960

Nelson Chemical Company
12345 Schaefer Highway
Detroit, Michigan 48227
Telephone: (313) 933-1500

Marine Pollution Control Corporation
8631 W. Jefferson
Detroit, Michigan 48209
Telephone (313) 849-2333

Recovery Units - Skimmers

Michigan Marine Salvage
32475 S. River Road
Mt. Clemens, Michigan 48045
Telephone: (313) 468-2430

Marine Pollution Control Corporation
8631 W. Jefferson
Detroit, Michigan 48209
Telephone (313) 849-2333

Oil Spill Recovery -- Trucks

Chem-Met Services, Inc.
18550 Allen Road
Wyandotte, Michigan 48192
Telephone: (313) 282-9250

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Oil Spill Recovery Con't:

Hartley and Hartley, Inc.
2370 S. Two Mile Road
Kawkawlin, Michigan 48631
Telephone (517) 684-3960

Marine Pollution Control Corporation
8631 W. Jefferson
Detroit, Michigan 48209
Telephone (313) 849-2333

Nelson Chemical Company
12345 Schaefer Highway
Detroit, Michigan 48227
Telephone - (313) 933-1500

APPENDIX "A"

Tank Truck Unloading Procedure

1. Insure that tank trailer is accurately spotted at the proper unloading spot.

2. Tank trailer brakes will be set and the driver will remain with the vehicle during the entire unloading period.

3. Caution signs will be placed in the vicinity of the tank trailer to give necessary warining to approaching personnel and must be left up until after tank trailer is unloaded and disconnected from discharge connection. Signs will be metal or other suitable material, at least 12 inches by 15 inches in size, and bear the words "Stop-Tank Trailer Connected." Letters will be white on a blue background.

4. Unloading operations shall be performed only by reliable persons properly instructed and made responsible for careful compliance with applicable regulations.

5. Unloading of tank trailers will be done during daylight hours except under emergency conditions.

6. No open flame of any kind shall be permitted, for any purpose whatsoever, near the tank trailer or within the vapor area surrounding the tank trailer. Smoking is strictly forbidden within this area. Only spark-proof tools will be used.

7. Make sure the permanent storage tank is vented before connecting the unloading line.

8. Determine by tape sounding and/or King gauge sounding of receiving storage tank that sufficient space is available in storage tank to receive contents of the tank trailer.

9. Tank trailer number is to be compared with that on shipping papers on invoice to determine contents of trailer and avoid mixing of products.

10. To verify tank trailer contents a sample will be withdrawn and material identified. Powerhouse personnel will identify fuel oil received. Maintenance personnel will identify gasoline received. Laboratory personnel will identify all other bulk materials. Samples will be secured by:

    a. Insure that tank car is relieved of all interior pressure by venting tank by opening vent on dome at short intervals.
    b. After relieving pressure, open manhole cover and obtain sample through the manhole.

11. Attach ground strap (plant) to bumper of tank trailer (for flammable materials).

Appendix "A" Con't:

12. Remove closure from valve through which car is to be unloaded after placement of catch basin in position to catch any liquid that may be in the outlet chamber.

13. If leakage shown upon starting to remove cap, cap must not be entirely unscrewed, but sufficient threads must be left engaged and sufficient time allowed to permit escape of any accumulation of liquid in the outlet chamber. If leakage stops or initial rate of leakage diminishes materially, the cap may be entirely removed. If initial rate of leakage continues, valve must be actuated a couple of times to see that outlet valve in bottom of tank is on seat. If this fails, the cap must be screwed up tight and trailer must be unloaded through top manhole.

14. After removing cap, visually inspect the outlet chamber to insure that no blockage exist. If blockage does exist immediately replace cap and unload trailer from the top.

15. Attach unloading line to the proper connection on the outlet leg.

16. Open bottom outlet valve and proper valves in the unloading lines.

17. Start pump checking to insure there is no leakage at any of the connections. Should leakage be present immediately stop pump.

18. After liquid has been removed, stop pump, close all valves, disconnect plant unloading line from tank trailer, replace cap to outlet and make all other closures tight.

19. Remove all portable signs and release tank trailer.

Appendix "B"

Manufacturers and Distributors of Absorbents:

Fiberperl
(absorbent)
Marine Pollution Control Corporation
8631 W. Jefferson
Detroit, Michigan 48209
Telephone - 313-849-2333

Dow Imbiber Beads
(absorbents)
Gedcor Envoronmental Protection Corp.
32816 Manor Park
Garden City, Michigan 48135
Telephone - 313-261-1000

Common collecting materials are normally available locally as they are routinely stocked for other purposes.

Common collecting materials:
- straw
- hay
- sawdust

Normal local vendors for these materials are:
- Lumber Yards
- Nurseries
- Local Farmers

BECAUSE OF ILLEGIBLE ORIGINAL, THIS PAGE HAS BEEN RETYPED FOR CLARIFICATION

APPENDIX C

PCB HANDLING & DISPOSAL PROCEDURES

1. Siting

(A) See plant layout Exhibit 1, for substation transformer locations containing PCB's.

(B) All motors over 7½ HP have PCB capacitor located on the motor control panel.

2. Handling

(A) Electrical items containing PCB material will not be purchased. All orders for transformers or capacitors contain the statement, "must not contain PCB's".

(B) The Plant Engineering Department is responsible for labeling and removal of a PCB-containing item. The PCB-containing item shall be placed in specially marked sealable drums located in the motor repair shop Col. 22G. When a disposal quantity of items is collected, the Purchasing Department will prepare the necessary shipping papers, and will obtain the necessary approvals.

3. Identification

(A) PCB-containing items will be labeled in accordance with U.S. E.P.A. rules when they are promulgated.

(B) However, until the rules are finalized, all PCB-containing items SHALL BE identified with a label stating:

> "CAUTION -- This item contains PCB. Use extreme care to prevent spills or leaks. If this item leaks, immediately call Plant Engineering, Ph. 251.
> If this item requires routine disposal call Plant Engineering Ph. 251."

4. Disposal

(A) Chevrolet-Bay City's disposal procedures for PCB items will conform to U.S. EPA regulations, when they are promulgated.

(B) However, interim disposal methods include:

1. Soaking and containment of spills with, Imbiber beads and pads, stored in designated areas.
2, Spills are washed with perchloroethylene, with all rags, gloves and associated equipment being disposed of in approved manner.

Appendix C - Con't:

Item 4 Disposal Con't:

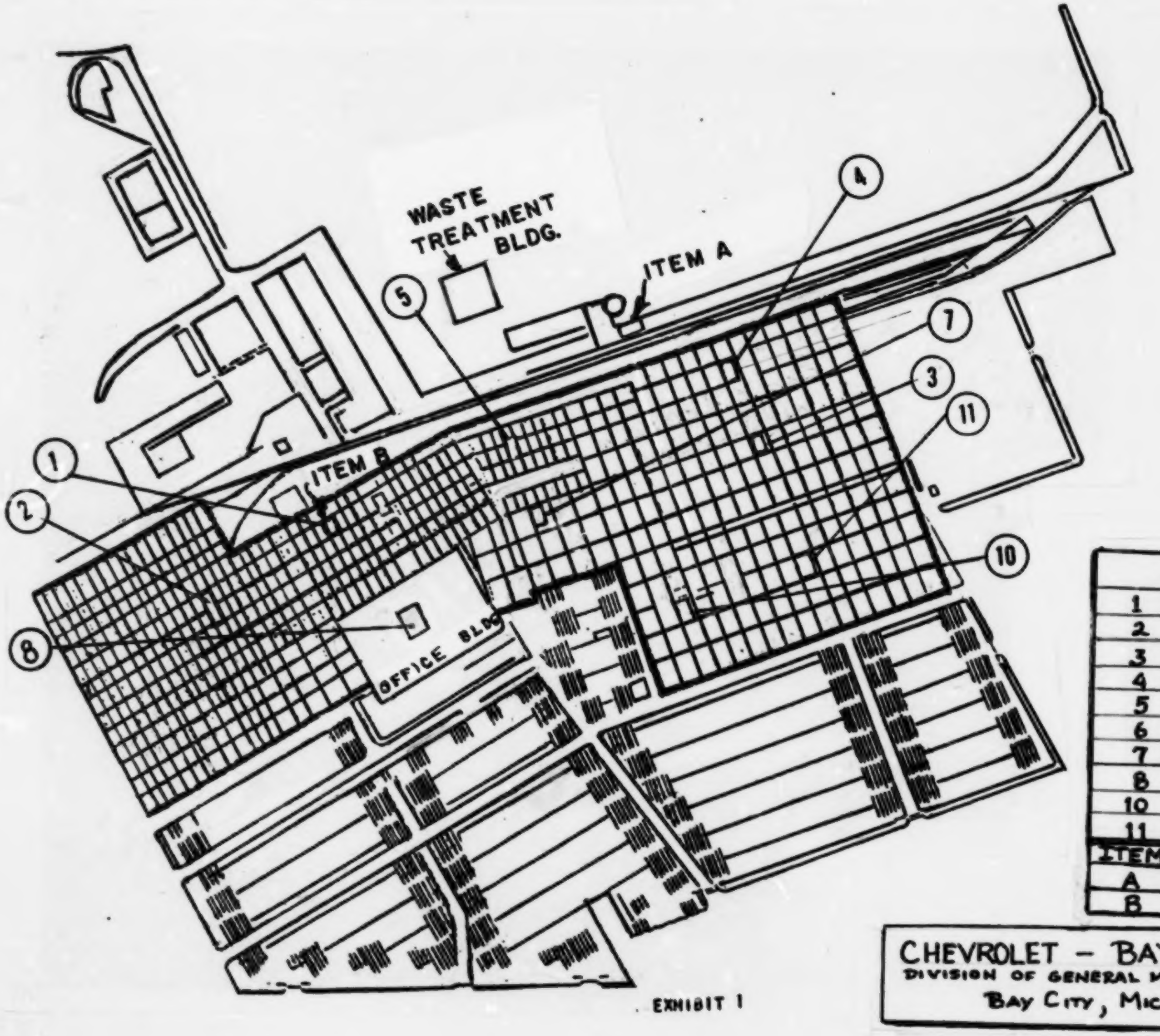
3. All electrical items containing PCB material and all material used in cleanup operations are disposed of by:

   Drilling and Draining capacitors in accordance with Michigan DNR Act 60. Depositing them in sealable 55 gal. drums in the motor repair shop. These drums when full, are labeled and stored in a dyked-roofed-posted area, until a shipping quantity is accumulated.

4. (A) All PCB containing items are shipped to approved disposal sites; see listing of facilities, Exhibit 2.

   Shipping is in accordance with Michigan E.P.A. Regulations, Rule 10 (R299.3310).

   (B) All electrical personnel and maintenance supervision have received written instructions on clean-up of PCB spills, handling and disposal of PCB materials.


WASTE TREATMENT BLDG.
ITEM A
ITEM B
OFFICE BLDG
1
2
3
4
5
7
8
10
11

	GALLONS IN TRANSFORMER	
1	1,455	
2	1,090	
3	640	
4	640	
5	1,280	
6	550	NOT IDENTIFIED ON DRAWING
7	1,800	
8	1,800	
10	380	
11	380	
ITEM		
A	DISPOSAL STORAGE	
B		

CHEVROLET - BAY CITY
DIVISION OF GENERAL MOTORS CORPORATION
BAY CITY, MICHIGAN

EXHIBIT 1

Exhibit 2

PCB TREATMENT OR DISPOSAL FACILITIES

Rollins Enviromental Services
Main Office: Wilmington, Deleware
Telephone 302-658-8541
Facilities: Bridgeport, New Jersey
Baton Rouge, La.
Houson, Texas
Can handle solids and liquids by incineration.

Attachment "D"

Bay City - Reclaim Oil

HCL Calculations

Weight Of HCL produced/min.

mg PCB = 4 gpm x 3.78 L/Gal. x 50 ppm

mg PCB = 756

mg CL = 756 mg PCB x 0.42 CL/PCB

mg CL = 317

$$\text{mg HCL/Min} = 317 \text{ mg CL} \times \frac{36.4 \text{ Mol. Wt. HCL}}{35.4 \text{ Mol. Wt. CL}}$$

mg HCL/Min. = 326

HCL Vol. @ STP

$$\text{Moles HCL/Min.} = \frac{326 \text{ mg HCL/Min.}}{36400 \text{ mg HCL/Mole}} = 0.0089 \text{ Mole/Min}$$

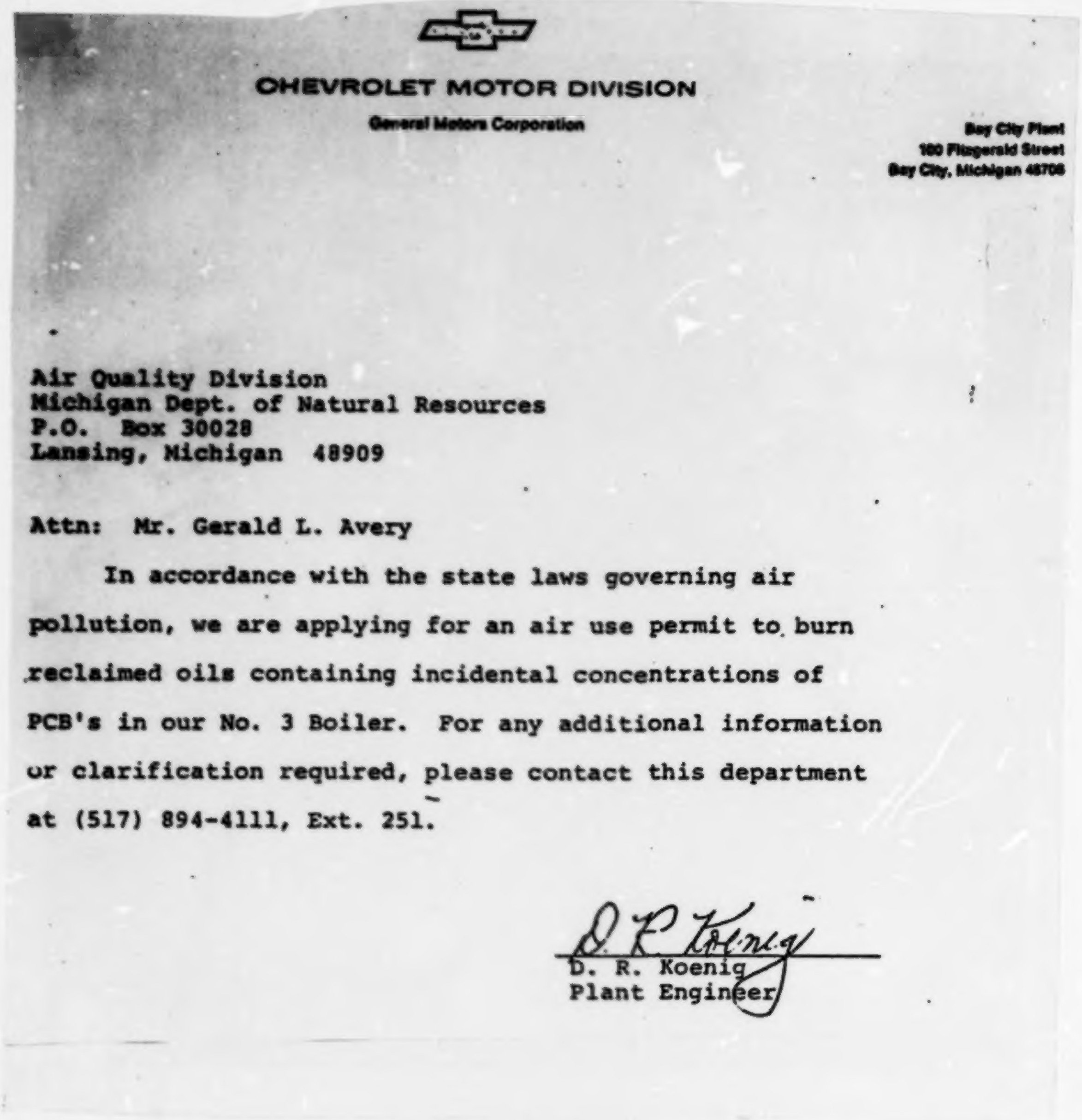
SCFM HCL = 0.0089 Moles/Min. x 22.4 L/Mole x 0.0353 Cu. Ft./Liter

SCFM HCL = 0.0070

PPM of HCL

$$\text{PPM of HCL} = \frac{0.0070 \text{ SCFM HCL}}{8656 \text{ SCFM Exhaust}} \times 1{,}000{,}000$$

PPM of HCL = .81



CHEVROLET MOTOR DIVISION
General Motors Corporation

Bay City Plant
100 Fitzgerald Street
Bay City, Michigan 48706

Air Quality Division
Michigan Dept. of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Attn: Mr. Gerald L. Avery

In accordance with the state laws governing air pollution, we are applying for an air use permit to burn reclaimed oils containing incidental concentrations of PCB's in our No. 3 Boiler. For any additional information or clarification required, please contact this department at (517) 894-4111, Ext. 251.

D. R. Koenig
D. R. Koenig
Plant Engineer

AIR QUALITY DIVISION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES
P.O. BOX 30028, LANSING, MICHIGAN 48909

Pollution Control
APR 17 1978

APPLICATION NO
385-78

APPLICATION TO THE AIR POLLUTION CONTROL COMMISSION

for authority to construct, install or alter

and

for permit to operate process, fuel burning, refuse burning and/or air pollution control equipment

1 PERMIT TO BE ISSUED TO: *(Business License Name of Corporation, Partnership, Individual Owner, Governmental Agency)*
Chevrolet Motor Division, GMC

2 MAILING ADDRESS: *(Number, Street, City or Village, Zip Code)*
100 Fitzgerald Street, Bay City, Michigan 48706

3 EQUIPMENT OR PROCESS LOCATION: *(Number, Street, City or Village, Township, Zip Code)*
100 Fitzgerald Street, Bay City, Michigan 48706

4 TYPE OF ORGANIZATION: ☒ Corporation ☐ Partnership ☐ Individual Owner ☐ Governmental Agency

5 GENERAL NATURE OF BUSINESS:
Manufacturer of Automobile Parts

6 EQUIPMENT DESCRIPTION: Application is hereby made for permission to construct, install or alter and to operate the following equipment

Burn reclaimed oils containing incidental concentrations of PCB's in existing No. 3 Boiler.

7 ESTIMATED COST: Air Pollution Control Equipment $____ Total Project $____

8 PRESENT STATUS OF EQUIPMENT: *(Check and complete applicable items)*

	Estimated Starting Date	Estimated Completion Date
(X) Construction or installation not started	6/1/73	7/1/78
( ) Construction or installation partly completed		
( ) Construction completed		
( ) Equipment is to be altered		
( ) Equipment is partly altered		
( ) Equipment has been altered		
( ) Change of location and/or ownership		

9 NAME OF PRIOR OWNER AS IN (1) ABOVE, AND PRIOR AIR POLLUTION CONTROL PERMIT NUMBER, IF ANY:
(Name) *(Permit Number)*

10 TYPE OR PRINT NAME AND TITLE OF OWNER OR AUTHORIZED MEMBER OF FIRM:
(Name) D.R. Hoenig *(Title)* Supt.-Maint. & Plt. Eng.
(Signature) *(Date)* 4/13/78 *(Phone No.)*

11 DISPOSITION OF APPLICATION:
USE ONLY
VOID
Permit to install approved and issued on JUN 28 1978 Signature
Permit to operate approved and issued on Signature

FORM AP-1 1M 6/73

(Instructions for completing this form are on reverse side)

AIR POLLUTION CONTROL COMMISSION

AIR QUALITY DIVISION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

APPLICATION INSTRUCTIONS

Submit this form in triplicate; complete application requires specifications and drawings in duplicate. An application is required for basic processing equipment as well as air pollution control equipment. Basic equipment includes any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants. Air pollution control equipment includes any article, machine, equipment or other contrivance, the use of which may eliminate or reduce or control the issuance of air contaminants. One application will suffice for an interrelated process. This application must be signed by the owner or authorized member of firm. Please attach the following:

1. **Equipment Location Drawings – Submit drawings showing:**
   - **a. Plan view of owner's property to boundary lines; include outline and height of all structures.**
   - **b. Locate and identify proposed equipment on property line.**
   - **c. Locate and identify all adjacent properties and all structures within 150 feet of proposed equipment showing outlines and heights.**
   - **d. Indicate north direction on drawing.**
2. **Equipment Specification – State make, model, size and type, etc. of proposed equipment and all major accessory equipment.**
3. **Process or Use Specification – Attach a complete written description of each process covered by this permit application. Explain clearly and in detail each process stage by including the nature, quantity, concentration, particle size, pressure, temperature, etc. of materials which may be discharged to the atmosphere. Prove sufficient control method detail to show the extent and efficiency of air pollution control devices.**
4. **Operating Schedule – Specify proposed equipment operating time in hours per day and days per week.**
5. **Process Weight – Detail type and feed rate in pounds per hour or similar measure for each process material charged.**
6. **Fuels and Firing Devices – Indicate for gaseous fuels: type and cubic feet per hour, for fuel oil: grade and gallons per hour, sulfur content, and specify temperature to which oil is preheated; for solid fuels: type, ultimate analysis and pounds per hour, indicate for firing device: make, model, size, type, number of devices and capacity range of each device (from minimum to maximum).**
7. **Flow Diagram – For continuous processes, show the flow materials either on a separate flow diagram or on the drawings accompanying the application.**
8. **Drawings or Equipment – Supply an assembly drawing, dimensioned to scale, in plan, elevation and as many sections as are needed to show, clearly, equipment design and operation and the means for controlling air contaminants. Structural design calculations and details are not required. When installing standard commercial equipment, the manufacturer's scale describing the equipment may be submitted in lieu of the parts of Item 8 that it covers. The following must be shown:**
   - **a. Size and shape of the equipment; exterior and interior dimensions and features and materials of construction.**
   - **b. Locations, sizes and shape details of materials handling equipment and all features which may affect the production, collection, conveying or control of air contaminants.**
   - **c. Horsepower rating of driving motors.**
   - **d. Additional information may be required.**
   - **e. Indicate where in the system provision is made for source testing.**
9. **A permit application should pertain to an individual unit of equipment or to an operation or to a series of related operations within a process which are scheduled for simultaneous installation or alteration.**

After authority to construct, install or alter is granted for any equipment, deviations from the approved plans and application information required are not permissible without first securing written approval.

Further information or clarification concerning permits can be obtained from the Air Quality Division
Phone: (517)373-8630, **(Lansing) Michigan Department of Natural Resources,** P.O. Box 30028
Lansing, Michigan 48909

– Yellow copy to be re,.ined by applicant –

PERMIT TO BURN PCB CONTAINING OILS

Item #1 - Refer to attached drawings #PE-B-160, sheet #268 and PE-H-22.

Item #2 - #3 Boiler will be used to burn PCB containing oil. This boiler is used to produce steam. It is a Wickes, Type "A"65-4K-7, with a capacity of 60,000 lbs. steam/hr. The State boiler permit number is M71616M.

Item #3 - For information on the process specifications, refer to the test report sent to your office by Mr. E. R. Bangel of Chevrolet Central Office. The report covered the test procedure and results of the emission tests conducted by Chevrolet while burning PCB containing oils in our boilers.

Also, refer to the attached letter, dated November 16, 1977, from Mr. Gerald L. Avery, Department of Natural Resources, concerning a list of information necessary to process a permit to burn PCB's. Enclosed is a list of answers to those questions (See Attachment "A").

Item #4 - The powerhouse normally operates on two (2) boilers, 24 hours/day, 7 days/week. Since oil is reclaimed @ 4000-5000 gallons/month, burner requirements dictate that reclaimed oil could provide 3-4 days of fuel per month for the operation of one boiler when mixed with #2 fuel oil so as to reduce the PCB concentrations to less then 50 PPM.

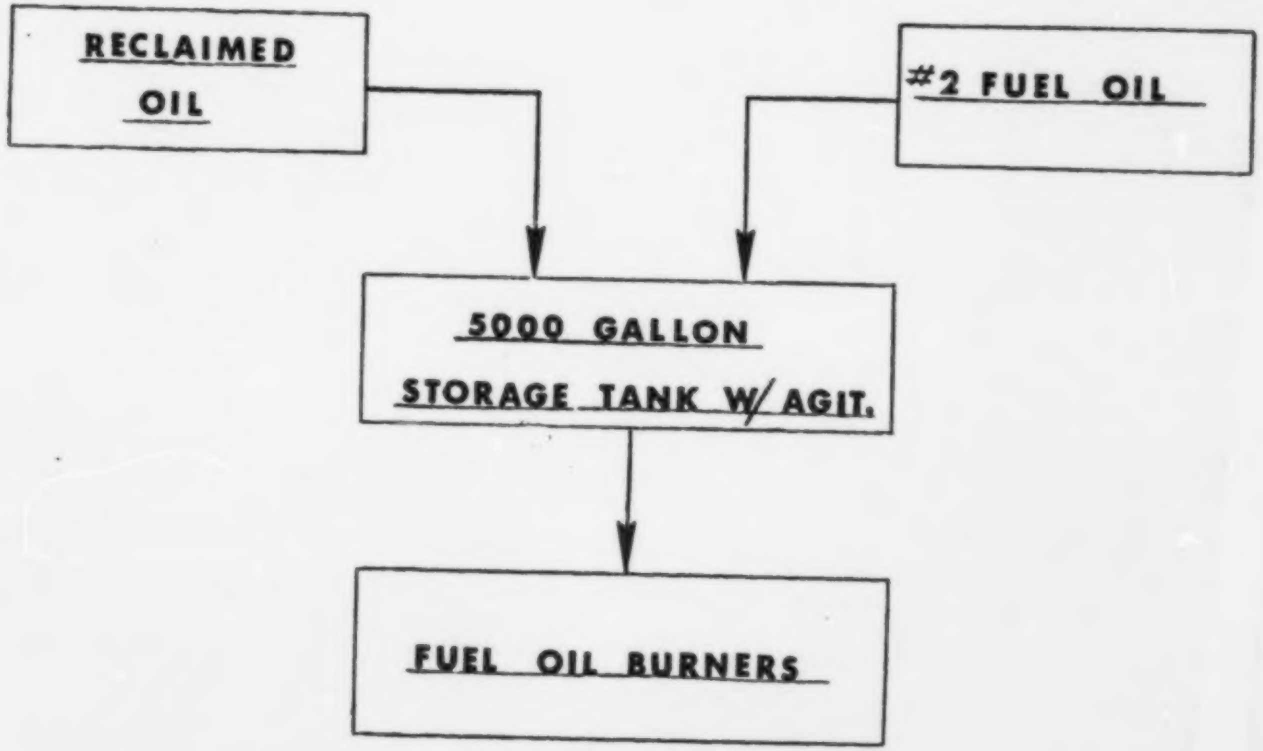
Item #5 - Does not apply, see Item #6.

Item #6 - Fuel consumption for the boiler burning reclaimed oils will be approximately 240 gallons/hr. The fuel supplied to the boiler will be reclaimed oils mixed with #2 fuel oil (@ .208% Sulfur content) so as to reduce the PCB concentrations to less than 50 PPM. Annual usage of the reclaimed oils will be approximately 60,000 gallons.

Item #7 - See attached sheet, Illustration #1.

Item #8 - Refer to the attached manufacturer's Drawing Number SA-884.

ILLUSTRATION #1 - FUEL OIL FLOW DIAGRAM


RECLAIMED OIL
#2 FUEL OIL
5000 GALLON STORAGE TANK W/ AGIT.
FUEL OIL BURNERS

Attachment "A"

1. Refer to Drawing's #PE-B-160, sheet #268 and PE-H-22.

2. (a) Acceptance as a reclaim oil from our manufacturing plant only.

   (b) Laboratory analysis of each batch of reclaim oil for PCB content.

   (c) All PCB's are contained in the reclaim oil and are the residuals from the hydraulic systems operated within the manufacturing plant.

   (d) Not Applicable (N.A.), the sources of the reclaim oil are within the manufacturing facility.

   (e) N.A.

   (f) N.A.

   (g) Reclaimed oils are accumulated in a holding tank. This tank will be equipped with a carbon filter vent cap.

3. See attached Pollution Incident Prevention Plan for Chevrolet-Bay City (Attachment "C").

4. The reclaim oil will be transferred via pipeline in small quantities to the powerhouse and mixed with a predetermined amount of fuel oil so as to reduce the PCB concentrations to less than 50 PPM, this oil will be used to fire one boiler.

5. None, because of the low concentrations of the material.

6. Normal plant security.

7. Reclaim oil containing not more than 50 PPM PCB and mixed with No. 2 Fuel Oil will be burned in one boiler only, at a rate compatible with the steam demand.

8. Reclaim oil and No. 2 Fuel Oil.

9. .8 PPM, see attached calculations (Attachment "D").

10. Boiler manufacturer specifications indicate one (1) full second retention in the combustion zone. Burner temperature of 2600 to 2700°F; back wall temperature of 1500 to 1600°F. See page 5 of test report of 5-19-75.

Attachment "A"

11. Not Applicable (N.A.). See test report of 5-19-75.

12. N.A.

13. Reclaim oil is handled as a batch process. Each batch is sampled and Laboratory tested to confirm concentrations of less than 50 PPM of PCB before burning.

14. Usual boiler controls monitored during normal fuel burning.

15. None.

16. N.A.

17. N.A.

18. N.A.

19. N.A.

20. Test report of 5-19-75 demonstrated reliability of destruction of PCB's in reclaim oil when held to less than 100 PPM of PCB. No further testing is contemplated.

21. See test report of 5-19-75.

22. None.

23. None.

Attachment "B"

(See PE-H-22 also)

Manufacturing Building -	Height
Administration Office	34'
Area #1	37'0"
Area #2	27'0"
Area #3	26'0"
Area #4	29'0"
Area #5	32'

Out-of-Plant Facilities	Height -	Size
Warehouse	13'6"	60' x 400'
Powerhouse	42'	108 x 123'
Oil Pumphouse	8'	18' x 32'
Primary Switch Room	15'	20' x 60'
Metal Storage Area	-	40' x 72'
Hazardous Mat'l Storage	28'	64'4" x 84'4"
Barrel Storage	33'6"	42'8" x 96'8"
Watertower	100'	28' Dia.
Oil Storage Tanks and Dikes	32'	33' Dia
Wastewater Facility	43'	108'2" x 123'2"
Tank Farm	20'	32'8" x 59'4"
Oil Pump Room	30'	14' x 40'

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

May 10, 1978

TO: Jerry Avery, Permit Unit

FROM: John Shaffer, S. S. Unit JS.

SUBJECT: Chevrolet Bay City - PCB Test, May 17, 1976

This test is not acceptable based upon the following:

1. Sampling method needs to be verified in the laboratory with respect to the following:

   a) Capture efficiency of Florisil tube based on the volume flow rates as applied.
   b) Effects of stack moisture on capture efficiency.
   c) Analytical recovery efficiency of Florisil tube.
   d) Detection level of Florisil method as applied.
   e) Maximum level of saturation of Florisil - maximum amount of PCB that can be adsorbed per gram of Florisil.

2. Sampling was not conducted isokinetically. In all cases, sampling for PCB's shall be done isokinetically. This is based on the low vapor pressure of PCB and its (assumed) tendency to adsorb onto the surface of particulate. This assumption will be made until definitive information to the contrary is received.

3. The report failed to be descriptive in the exact field procedures and analytical procedures used on this test. In addition, the figures used in Section II, Results, of the report do not agree with the figures or units used in other documents received at a later date. The following are in question:

   a) PCB concentration in oil mixture - units are inconsistent - PPM or mg/liter.
   b) Mixture concentration is incorrect regardless of units.
   c) Volume flow rate used in report is not used as a basis for calculations elsewhere.
   d) Weights of PCB collected not shown in report.

It is my opinion that the method used is a good approach. However, the items that I have found in question could theoretically give lower results than actual. Notwithstanding the lack of a definitive method, the Chevrolet test does illustrate that the emissions of PCB's increases while burning PCB waste oil.

JS:nh

Thank you for your cooperation. If you have any questions, please contact Mr. Gerald Avery at (517) 322-1333.

Very truly yours,

Delbert Rector

Delbert Rector, Chief
Air Quality Division

DR:gav

Enclosure

cc: Ben White

Richard Powers
Office of Toxic Materials Control
Environmental Services Div.
Department of Natural Resources

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

HOWARD A. TANNER, Director

NATURAL RESOURCES COMMISSION
CARL T. JOHNSON
E. M. LAITALA
DEAN PRIDGEON
HILARY F. SNELL
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

AIR POLLUTION CONTROL COMMISSION
Maurice S. Reizen, M.D.,
Chairman
Watson A. Gilpin, M.D.
Mary L. Graves
Robert L. Henry, Jr.
Edward J. Klopp, Jr., M.D.
George H. Rocke
Stanley R. Quackenbush
Philip L. Richards
O. J. Scherschligt
Edwin S. Shannon
Morton Sterling

Box 30028
Lansing, MI 48909

June 2, 1978

Chevrolet Motor Division
General Motors Corp.
100 Fitzgerald Street
Bay City, MI 48706

ATTENTION: R. D. Koenig, Superintendent
Maintenance and Plant Engineering

Gentlemen:

This letter is in reply to your application received on April 17, 1978, for a Permit to burn oil containing polychorinated biphenyls (PCB) in your existing no. 3 oil firing boiler, proposed for location at 100 Fitzgerald Street, Bay City, Michigan.

The staff of the Michigan Air Pollution Control Commission is presently unable to approve this application pursuant to the delegation of authority entered by the Commission because it is the judgemnt of the staff that the equipment for which the permit is sought would not operate in compliance with Rule 46 of the Commission's rules. Enclosed is a copy of our staff report which explains the basis of our judgement.

Accordingly, the staff will recommend that the Michigan Air Pollution Control Commission deny your application for a Permit to Install this equipment. This action is scheduled for June 20, 1978, and will be considered during the time set aside for review of the permit applications. At that time, you will be given an opportunity to appear before the Commission on behalf of your application for the Permit to Install.

You are advised not to install the aforementioned equipment until such time as you receive an approved Permit to Install from the Commission. By law, any person who installs such equipment without first obtaining the Permit to Install is guilty of a misdemeanor and subject, upon conviction, to a substantial fine.

MICHIGAN
THE GREAT LAKE STATE

R1026-8
10/77

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY DIVISION
STAFF ACTIVITY REPORT

June 20, 1978

Applicant

Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, MI 48706

Permit to Install No. 385-78

Significant Dates

April 17, 1978 -- Application for Permit to Install received.

Proposed Facility

The applicant is proposing to burn oil containing polyclorinated biphenyl (PCB) in their existing 60,000 lbs. of steam per hour boiler. The PCB contaminated oil would be mixed with No. 2 fuel oil in order to reduce the PCB concentration to less than 50 parts per million. The total amount of PCB contaminated oil that would be burned is approximately 240 gallons per hour or 60,000 gallons per year.

History

The applicant had been burning PCB contaminated oils in their three existing boilers for approximately 2 years. On July 14, 1977, the Office of Toxic Materials Control, Environmental Services Division, Department of Natural Resources denied the applicant's exemption application to burn PCB contaminated oils in the boilers since the applicant had not fully complied with the provisions of Act 60, P.A. of 1976, and the administrative rules promulgated pursuant to the act. Act 60 is the PCB control act that regulates the manufacture, sale, use, and disposal of PCB. On September 2, 1977, the Commission's staff notified the applicant that an approved air use permit application must be obtained from the Commission before any further burning of PCB contaminated oils would be authorized.

On February 17, 1978, final regulations for disposing of PCB were promulgated pursuant to Section 6, (e)(1) of the United States Toxic Substance Control Act. These federal regulations require that the combustion criteria for disposing of PCB shall be either of the following:

1. Maintenance of the PCB for a 2 second dwell time at 2192°F and 3% excess oxygen in the stack gas, or

2. Maintenance of the PCB for 1.5 second dwell time at 2880°F and 2% excess oxygen in the stack gas.

Analysis of Impact

The applicant has submitted data that indicates that the dwell time of the PCB contaminated oils in the combustion zone of the boiler would be equal to 1 second at a temperature that would vary from approximately 2650° at the burner to approximately 1550° at the back wall. These combustion conditions clearly do not meet the criteria listed above. Therefore, it is the judgement of the staff that the burning of PCB contaminated oil would not comply with Rule 46 of the Commission's rules since there is not adequate assurance that the PCB would be completely combusted. Rule 46 prohibits the emission of an air contaminant which causes or will cause detriment to the safety, health, welfare or comfort of any person.

The following are a list of additional items that were not adequately covered in the present application which staff did not investigate in detail since the proposed equipment would not satisfy the basic combustion criteria:

1. The application did not include a water scrubber which is required to control the hydrogen chloride that would be generated by burning the PCB.

2. The stack test that the applicant conducted on May 17, 1976 and which indicated a 99.99+% PCB destruction was unacceptable. It was unacceptable because the sampling method was not verified in a laboratory, the sampling was not conducted isokinetically, and the stack test report did not describe the exact field and analytical procedures used in the test.

3. Other data necessary for a complete application was not submitted.

Recommendation

The staff recommends denial of the Permit to Install No. 385-78, pursuant to rule 336.28(a) which states: "The Commission shall deny an application for a Permit to Install if, in the judgement of the Commission, the equipment for which the permit is sought would not operate in compliance with the rules of the commission or state law".

Submitted by: Gerald L. Avery
May 31, 1978
GLA:mb

BECAUSE OF ILLEGIBLE ORIGINAL, THIS PAGE HAS
BEEN RETYPED FOR CLARIFICATION

GM SWC DETROIT
SNB0001 NS BYCA
LWA GERALD AVERY DEPT. OF NATURAL RESOURCES, LANSING, MI

GERALD AVERY, SUPV. OF PERMIT UNIT

DEPARTMENT OF NATURAL RESOURCES
SECONDARY COMPLEX-GENERAL OFFICE BLDG BOX 30023
LANSING, MI 43000

REFERENCE IS MADE TO OUR APPLICATION FOR A PERMIT TO INSTALL 0. . 335-78 RECEIVED BY YOU ON APRIL 17, 1973, TO BURN RECLAIMED OILS CONTAINING INCIDENTAL CONCENTRATIONS OF PCB'S IN OUR EXISTING N.3 OIL FIRED BOILER LOCATED AT CHEVROLET-BAY CITY, 100 FITZGERALD STREET, BAY CITY, MICHIGAN, 48706. WE REQUEST THAT THE SUBJECT PERMIT APPLICATION BE WITHDRAWN AND REMOVED FROM CONSIDERATION BY THE AIR POLLUTION CONTROL COMMISSION.

D. R. KOENIG, SUPT. MAINT. & PLT. ENGR., CHEVROLET BAY CITY

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

HOWARD A. TANNER, Director

NATURAL RESOURCES COMMISSION
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Stanley R. Quackenbush
Philip L. Richards
D. J. Scherschligt
Edwin S. Shannon
Morton Sterling

Box 30028
Lansing, MI 48909

JUN 28 1978

Chevrolet Motor Division, GMC
100 Fitzgerald Street
Bay City, MI 48706

ATTENTION: R. D. Koenig, Superintendent
Maintenance and Plant Engineering

Gentlemen:

This letter is in reference to your application received on April 17, 1978, for a Permit to burn oil containing polychlorinated biphenyls (PCB) in your existing no. 3 oil fired boiler, located at 100 Fitzgerald Street, Bay City, Michigan. The application, identified as No. 385-78, has been voided by the staff.

Action to void this application was due to your June 15, 1978, request to withdraw this application.

Please contact this office within 30 days if you wish to appeal this action or have any questions concerning it.

Very truly yours,

Gerald L Avery

Gerald L. Avery, Acting Chief
Permit Unit
Air Quality Division

GLA:jv
Enclosure
cc: Ben White

MICHIGAN
THE GREAT LAKE STATE
R1026-6
10/77

Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, Michigan 48090

David S. Potter
Vice President

November 2, 1978

Mr. Douglas M. Costle
Administrator
U. S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Mr. Costle:

On September 1, 1978, Mr. E. M. Estes, President of General Motors Corporation, received an August 29 letter from Mr. V. V. Adamkus, Acting Regional Administrator, EPA Region V, regarding 40 CFR Part 761, Polychlorinated Biphenyls (PCB's) Disposal and Marking Regulations. Since the regulations were published in the February 17, 1978, Federal Register, my staff has been maintaining a continuing watch for the availability of EPA approved PCB incineration facilities. We believe that incineration is most appropriate for preventing future problems caused by PCB wastes.

I am very much concerned that in the eight months since publication of the regulations, no EPA approved incineration facility has become commercially available. This, of course, impedes the orderly destruction of existing PCB's in this country, and may cause adverse environmental consequences due to spills and illegal disposal. I wish to call your attention to this matter and recommend that:

- EPA should evaluate whether the waste disposal industry will be able to meet federal, state, and local requirements for PCB incineration facilities. As yet, no commercial facilities have been approved and we are particularly concerned that there might be siting problems. In addition, the time schedule and capacity for these planned facilities should be determined to assure they can meet the demand for disposal needs in light of the proposed ban on manufacture and use of PCB's.

- If, in the judgment of EPA, the waste disposal industry cannot handle this matter expeditiously and with adequate capacity, EPA should actively assist the industry where necessary. For example, EPA could design and build demonstration incineration facilities, local ordinances permitting, for sale and/or lease to private contractors or local governments. These facilities could serve as a model for further expansion of the private waste management industry.

- EPA should encourage and assist private industry, state, and local governments in developing hazardous waste treatment and disposal facilities, including those for PCB wastes.

If members of my staff can be of assistance to you, please let me know. I earnestly hope your Agency will move quickly and positively to correct the current untenable situation.

Very truly yours,

N S Potter

cc: John McGuire
Regional Administrator
EPA Region V
230 South Dearborn Street
Chicago, Illinois 60604

bcc: W. D. Brusstar
G. E. Calhoun, Chev-C.O.
J. P. Chu
E. M. Estes
J. J. Hollis
W. R. Johnson
R. E. Magill
J. B. Medved, CFD, Saginaw
D. P. Parrish
W. J. Way

Ontario

Ministry
of the
Environment

JANUARY 11, 1979

FOR FURTHER INFORMATION:
L.F. Pitura (416) 636-8015
A.J. Raymond (416) 965-7117

MISSISSAUGA REPORTS RELEASED
BY ENVIRONMENT MINISTER HARRY PARROTT

Two reports on the burning and air levels of PCBs in Mississauga have been released today by Environment Minister Harry Parrott in preparation for public hearings on the subject.

The "Director's Report to the Environmental Assessment Board on the proposed burning of PCBs at St. Lawrence Cement, Mississauga" was filed with the board as the government's basic background document for the hearings, expected to take place in late February or early March.

Prepared by Len Pitura, director of the Ministry's waste management branch, the report contains information on the nature of PCBs, how they should be handled and destroyed, and available data on their effect on human health. It also provides a synopsis of the Ministry's position and a summation of the case it will present at the public hearings.

The second report is a study of the levels of PCBs in Mississauga air prepared by the Ontario Research Foundation for the Ministry. Although the report indicates that PCBs are present in trace amounts, it stresses that more study is needed to determine the accuracy and significance of the levels.

"I want all meaningful background data and available information about PCBs to be on the public record before the hearings start in Mississauga," Dr. Parrott said.

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... 2

The question regarding atmospheric levels of PCBs in the Mississauga area originally arose after trial burnings of the substance took place in the cement kiln at the St. Lawrence Cement Company. It had also been determined that some of the liquid wastes burned at St. Lawrence and the Tricil Ltd. facility contained trace amounts of PCBs. The Ministry has banned the burning of liquids containing pesticides and more than 100 parts per million of PCBs pending further scientific investigation and public hearings.

"To ensure that Mississauga residents will have access to all the data the need, the Ministry is holding several information open houses in the community. This will give interested citizens and environmental groups an opportunity to obtain comprehensive technical information and to consult with Ministry experts who will be on hand," the Minister said.

"We hope to announce the dates and locations of these information meetings within a few weeks."

Copies of both reports are available from:

Waste Management Branch
Ontario Ministry of the Environment
4375 Chesswood Drive
Downsview, Ontario M3J 2C2
Tel: (416) 636-8015

Ontario

Ministry
of the
Environment

135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

January 1979

FOR FURTHER INFORMATION:

T.W. Cross, Director
Air Resources Branch
(416) 965-6343

Highlights of the Ontario Research Foundation Report: "An Assessment of Atmospheric PCB Levels in Mississauga"

The primary objective of the ORF report was to determine the amount of PCBs in the air surrounding the St. Lawrence Cement and Tricil plants in Mississauga and to see if plant operations contributed to those levels.

The research was carried out by Ontario Research Foundation scientists in June and July 1978 on behalf of the Ministry of the Environment.

A total of 533 air samples were collected at four industrial sites on or near plant property and seven residential sites in the immediate area. Equipment to monitor wind speed and direction was installed to enable the scientists to correlate the concentrations of PCBs with possible sources.

Techniques for measuring PCBs in the air are still relatively new and extensive comparative background data is not yet available. The report emphasizes that its techniques should not be regarded as an entirely reliable quantifying procedure and says that several aspects of test results indicated that other organic substances in the air samples may have contributed to the levels found in the study.

In general, the report confirms the widespread occurrence of trace levels of PCBs in the atmosphere and provides further evidence of the need for more specific analytical techniques.

Several specific conclusions drawn from the results:

- the proportion of different forms of PCBs and several other features of the air quality data suggest that the reported levels of PCBs in the atmosphere are higher than the actual amount due to interferences that exist in the method of analysis.

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- average PCB concentrations ranged from a low of 6 $ng.m^{-3}$ in the residential areas to a high of 36 $ng.m^{-3}$ on the Tricil property. Average concentrations at the residential sites ranged from 6 to 12 $ng.m^{-3}$.
  (N.B. $ng.m^{-3}$ means a nanogram per cubic meter of air. One nanogram equals one billionth of a gram in weight or one-tenth of a part per trillion by volume, in effect miniscule quantities.)

- comparison of the PCB levels at upwind and downwind sites and the correlations of PCB concentrations with wind direction, indicate that emissions from St. Lawrence Cement and Tricil do not make a measurable contribution to the PCB levels in the air in the residential areas surrounding the plants.

- storage and handling operations of liquid waste by the plants appear to contribute to the PCB concentrations found on plant property sites. (Some liquid wastes such as crankcase oils are burned in the cement kilns as an alternative fuel source and may contain some PCBs.) Burning of any liquid waste containing pesticides or more than 100 parts per million of PCBs has been banned by the Ministry until further scientific investigation and public hearings can demonstrate the complete safety of the process.

- the results suggest that airborne PCBs at levels indicated above, may be coming into the area from other sources in the southwest. This is in agreement with the generally held concept that atmospheric transport is one important method by which PCBs spread through the atmosphere.

Background

Most background PCB air quality data from other areas in Ontario is difficult to compare to previous measurements because newer analytical techniques are being used.

In August 1978, the Ministry ran air sampling equipment in two locations for five days to obtain some more recent control data. Using a similar analytical method to that used in the ORF report, the following PCB levels were measured:

Downtown Toronto	- 31 nanograms per cubic meter (average for five days)
Rural area, east of Orangeville	- 8 nanograms per cubic meter (average for five days)

This and other similar data from around the world indicates the presence of PCBs in the atmosphere, even in areas like Bermuda, Hawaii, and the polar ice cap.

Measurements Elsewhere

(Analysis by different techniques; results not compared or confirmed)

Bermuda:	0.3 ng.m^{3}
Rhode Island:	9 ng.m^{3}
Fort Collins (Colo.):	2.1 to 15.4 ng.m^{-3}
Miami (Fla.):	0.9 to 37 ng.m^{-3}
Gainesville (Fla.):	11 to 44 ng.m^{-3}
Lafayette (Ind.):	1.7 to 13.7 ng.m^{-3}
New Bedford (Mass.):	8.5 to 1300 ng.m^{-3}
Jackson (Miss.):	1.8 to 16.0 ng.m^{-3}
Harrisburg (Pa.):	1.7 to 7.8 ng.m^{-3}

The prevalence of this substance strengthens the Ministry's opinion, as spelled out in the director's report, that PCB-contaminated material must be completely destroyed rather than permitting it to escape into the environment and then the food chain.

The director's report states that the Ministry is not aware of any studies which indicate that exposure to current atmospheric levels of PCBs poses a health hazard. It states that according to medical authorities in the Occupational Health and Safety Division of the Ontario Ministry of Labour (Special Studies and Services Branch) the major source of human exposure to PCBs is from fresh water fish.

The report gives an example which puts this in perspective. The maximum recommended safe level for PCBs in fish, as set by the federal government, is two parts per million. If you ate half a kilogram (1.1 pounds) of fish containing PCBs at this level, you would consume 5,000 times more PCBs than you could get from breathing Mississauga air for 24 hours.

This is based on 10 nanograms per cubic meter of air, the average level of airborne PCBs found in Mississauga. That's 10 billionths of a gram per cubic meter, a concentration well within the levels normally found in a wide range of North American communities.

In February, Environment Ontario expects to receive delivery of a mobile TAGA 3000 (Trace Atmospheric Gas Analyser) monitoring system, developed and manufactured by Sciex Inc., Thornhill.

This mobile unit will be used for further sampling and for comparative monitoring in Mississauga and other parts of Ontario and to develop more accurate sampling and analytical procedures. A TAGA 2000 owned by the federal government has been used previously for this purpose.

In addition, Sciex Inc. has been hired to do a comparative analysis of the Ontario Research Foundation samples taken last summer to eliminate and explain the suspected interference in the levels reported by the study. Preliminary results indicate lower concentrations or even the absence of some forms of PCBs. This suggests the likelihood that the values reported in the ORF study and other Ministry surveys may be artificially high, due to interference in the method of analysis.

The TAGA 3000 will give Environment Ontario the most advanced and sophisticated means available to analyze organic substances of all kinds, according to T.W. Cross, director of the Ministry's air resources branch.

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GCA/TECHNOLOGY DIVISION

TO: R. Bradway
N. Surprenant

DATE: April 19, 1979

FROM: W. Piispanen

SUBJECT: Trip Report for PCB Test Meeting

Purpose: To discuss PCB sampling and analysis for GM boiler test.

Attendees: From EPA: Ron Venezia
Hal Snyder (Office of Toxic Substances)
Larry Johnson

From GM: David Aldorfer (Environmental Activities)
G. E. Calhoun (Staff Engineer)

also three late attendees from G. M.

From GCA: W. Piispanen
S. Zelenski

Discussion:

The proposed regulations for disposal of PCB's were discussed by Hal Snyder. Ron Venezia then discussed the purpose of the testing at the G.M. facility. The problem of testing the Bay City, Michigan site was discussed with regard to acceptance of a test plan by the State of Michigan. A possibility of testing at other G. M. boilers was considered but the problem of transporting PCB's and other logistics was not considered feasible.

The remaining discussion was directed primarily towards testing at the Bay City boiler. The proposed test methods were discussed and compared against the tests completed by G. M. The method proposed by GCA was one similar to the "Mitchell Method". The advantages and disadvantages of florasil as a collection medium were discussed with no serious objection to the use for PCB collection. Larry Johnson reaffirmed the choice of florasil but noted that problems of plugging had been reported in high moisture tests.

In addition to the testing for PCB's, Ron Venezia requested that tests for dibenzo furans, total organic hydrocarbons, total chlorinated hydrocarbons, HCl, and total particulate be conducted. In addition, on-line monitors for CO, CO_2, O_2 and total hydrocarbons would be required since these parameters are not measured by G. M.

The discussion of these proposed tests resulted in a final plan to include three tests with a second Method 5 sampling train including a heated filter to collect the particulate. The particulate would be weighed and analyzed for dibenzo ferons. An XAD-2 sorbent column will be included on this train for the determination of total organic hydrocarbons by gravimetric and TCO methods. The HCl emissions will be measured in the sampling train by a method to be proposed by GCA. The inclusion of these additional tests would require the addition of a second sampling train and a crew of two more sampling personnel.

The on-line monitoring equipment will tentatively be provided by EPA along with a gas conditioning system. GCA will be responsible for installation and operation of these instruments during the tests. An additional team member will be required for this task.

No measurements or tests will be performed for total chlorinated hydrocarbons, NO_x, or SO_x.

The fuel/waste to be combusted during the tests was then discussed. Currently, G. M. has a pre-mixed batch of 54ppm PCB fuel similar to a #4 fuel mixture. The problem in using this fuel is that the regulations specify that only 10% of the fuel may be waste material. Burning the available waste would then result in a 5.4ppm mix which would not be feasible for test purposes. Also, the work assignment requires 1 test to be conducted at background conditions, i.e. - fuel without waste added. This condition would not be possible if the 54ppm waste were fired directly.

Instead, it will be necessary for G. M. to provide a holding tank for a prepared 500 ppm PCB waste material which will be mixed at a 1:9 ratio during testing. A #2 fuel will be used during test operations due to ease of mixing the waste in this material.

As a result, G. M. will provide one operation of burning #2 fuel only and 3 test burns of a fuel containing a total of approximately 50 ppm PCB's. An integrated trickle sample will be taken of the fuel burned during each test. Expected firing rate will be 240 gal/hr with steady operations. It was noted that the firing rate was lower than originally reported to GCA and may result in a longer than proposed test time. (A rough calculation indicated that 370 min. would be required for the collection of 10 μg at 99.9% destruction efficiency).

The conclusion of the meeting was that GCA should contact Ron Venezia with a new estimate of man hours required for the testing as discussed. A work plan for the testing and analyses should be provided directly to Ron Venezia, Hal Snyder and G. M. (David Aldorfer) by April 27.

Walter Piispanen

W. Piispanen

WP/baf

GCA

Technology Division
[illegible]

25 April 1979

Mr. Hal Snyder
Office of Toxic Substances
TS-794
U.S. Environmental Protection Agency
Washington, D.C. 20460 401 M Street, SW
Room 525, East Tower

Dear Mr. Snyder:

Enclosed is a copy of the work plan generated by GCA for an evaluation of the PCB-destruction efficiency of the GM boiler at Bay City, Michigan. The major elements of this plan are based on the results of our discussion of April 18, 1979, at Research Triangle Park. Please read and note any changes you feel might be necessary.

Dr. Venezia will contact you shortly for your comments on this work plan.

I hope that we can proceed with this project as expeditiously as possible.

Best regards.

Very truly yours,

Steven G. Zelenski, Ph.D.

SGZ:jaf
Enclosure

cc: Dr. R. Venezia

GCA

GCA CORPORATION
Technology Division
[illegible]
[illegible]
[illegible]

25 April 1979

Mr. Gene E.Calhoun
Staff Engineer
Facilities & Environmental Engineering Department
Central Office Warren Annex
Chevrolet Motor Division
General Motors Corporation
30007 Van Dyke
Warren, Michigan 48090

Dear Mr. Calhoun:

Enclosed is a copy of the work plan generated by GCA for an evaluation of the PCB-destruction efficiency of the GM boiler at Bay City, Michigan. The major elements of this plan are based on the results of our discussion of April 18, 1979, at Research Triangle Park. Please read and note any changes you feel might be necessary.

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Very truly yours,

Steven G. Zelenski

Steven G. Zelenski, Ph.D.

SGZ:jaf
Enclosure
cc: Dr. R. Venezia

GCA
CORPORATION
Technology Division
Burlington Road
Bedford, Mass. 01730
(617) 275-9000

12

May 1, 1979

Dr. Ronald Venezia
Chemical Processes Division
Particulate and Chemical Processes Branch
Industrial Environmental Research Laboratory
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

Dear Ron:

Enclosed are six copies of the revised project schedule to replace Section 4.0 in the workplan on the "Evaluation of PCB Destruction Efficiency in Industrial Boilers." These changes are based on our conversation of April 25, 1979, and reflect:

1. the addition of milestones for preliminary reporting of PCB and DBF analysis results,
2. initiation of data analysis and report preparation at earlier stages in the program and,
3. changing the date of final report submission to October 12, 1979.

I have also sent two copies each to Hal Snyder and Gene Calhoun.

Sincerely yours,

Steve

Steven G. Zelenski, Ph.D.
Head, Organic Analytical Section

SGZ/mjl

Enclosure

GCA

GCA CORPORATION
Technology Division
213 Burlington Road
Bedford, Mass. 01730
(617) 275-9000

May 1, 1979

Mr. Hal Snyder
Office of Toxic Substances
TS-794
U.S. Environmental Protection Agency
401 M Street, SWT
Room 525, East Tower
Washington, DC 20460

Dear Mr. Snyder:

Enclosed are two copies of the revised project schedule to replace Section 4.0 in the workplan on the "Evaluation of PCB Destruction Efficiency in Industrial Boilers." These changes are based on my conversation with Ron Venezia of April 25, 1979, and reflect:

1. the addition of milestones for preliminary reporting of PCB and DBF analysis results,
2. initiation of data analysis and report preparation at earlier stages in the program and,
3. changing the date of final report submission to October 12, 1979.

Sincerely yours,

Steve

Steven G. Zelenski
Head, Organic Analytical Section

SGZ/mjl

Enclosure

GCA

GCA CORPORATION
Technology Division
[illegible]
[illegible]
[illegible]

May 1, 1979

Mr. Gene E. Calhoun
Staff Engineer
Facilities & Environmental Engineering Department
Central Office Warren Annex
Chevrolet Motor Division
General Motors Corporation
30007 Van Dyke
Warren, MI 48090

Dear Mr. Calhoun:

Enclosed are two copies of the revised project schedule to replace Section 4.0 in the workplan on the "Evaluation of PCB Destruction Efficiency in Industrial Boilers." These changes are based on my conversation with Ron Venezia of April 25, 1979, and reflect:

1. the addition of milestones for preliminary reporting of PCB and DBF analysis results,
2. initiation of data analysis and report preparation at earlier stages in the program and,
3. changing the date of final report submission to October 12, 1979.

Sincerely yours,

Steve

Steven G. Zelenski, Ph.D.
Head, Organic Analytical Section

SGZ/mjl

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: June 1, 1979

SUBJECT: Trip Report: Michigan Dept. of Natural Resources, Lansing, Michigan May 23-24, 1979

FROM: Ronald A. Venezia

TO: Files

May 23, 1979

Attendees: EPA--Hal Snyder, Ron Venezia
GCA--Steven Zelenski
Michigan; Air Quality Div.--George Su
Permit Unit--Gerald Avery (Head of Unit), John Vial, John Trout

Discussion on 5/23 centered on conditions necessary for the State of Michigan to grant a permit to run the proposed PCB confirmation burn in General Motor's boiler at Bay City. Technical discussion covered the proposed sampling and analytical procedures.

May 24, 1979

Attendees: see attached list:

Again discussion was directed to the administrative procedures necessary to conduct the study.

Summary:

The State, General Motors, and EPA are in general agreement that the PCB program should be undertaken as soon as possible. However, the State has reservations and wants them resolved prior to allowing the PCB's to be burned. It was the opinion of the EPA representatives that to go to another State would not speed-up the program as the PCB issue is nationwide with most jurisdictions having the same concerns and similar requirements. To move the program as expeditiously as possible, the following was agreed upon by the State of Michigan, General Motors, and EPA.

1. General Motors would resubmit their application for a permit to burn PCB contaminated oil in their #1 boiler at Bay City, Michigan.
2. U.S. EPA will assist General Motors with their permit application.
3. G. M. will send EPA "old" permit package for review and update. received 6-4-79
4. GCA will prepare the sampling and analysis plan as soon as

EPA Form 1320-6 (Rev. 3-76)

6-11-79

possible (within two weeks). This will be included as part of the permit application.

5. GCA will prepare an environmental impact evaluation that will assist the State in determining if the program is a "Major State Action" requiring an EIS. This will also be attached to the permit application.

6. The permit application will be reviewed with the State prior to official submittal to correct any perceived problems.

7. EPA/OTS or Region V will submit a letter to the State of Michigan requesting waiver of the 21 day public comment period and subsequent Air Pollution Control Commission hearing. The basis of the request will be minimal/non-existent impact.

Because of the State's administrative requirements it will not be possible to conduct the program in June. The earliest possible date would be mid-July. However, a more realistic estimate would be late July or early August.

RV/cj

BECAUSE OF ILLEGIBLE ORIGINAL, THIS PAGE HAS
BEEN RETYPED FOR CLARIFICATION

5-24-79
8 a.m.

MTG WITH DNR, EPA, GCA

Exit 98B and I96 Canal Street

L.L. Johnson, Chevrolet C.O.W.A., 8-535-8961
W.W. Travers, Chevrolet - Bay City
D.R. Koenig, Chevrolet - Bay City
A.P. Garwick, Jr., Chevrolet - Bay City
W.J. Collinson, GM Environmental Activities Staff
G.E. Calhoun, Chevrolet C.O., 8-535-4619
R. Sobczynski, Chevrolet C.O., 8-535-8771
Jerry Avery, AQD, DNR, (517) 322-1333
John Vial, AQD, DNR
George Su, Ph.D., Air Quality Division, DNR
Ron Venezia, U.S. EPA, Research Triangle Park, NC (919) 541-2547
Gary Gettel, DNR-Enforcement Division, (517) 373-3503

Completed

1. From GM - A. Garwick to EPA - Ron Venezia, Copy of Permit
2. From GCA Work Plan - George Su - Prepare Sampling and Analysis Plan Coord. with R. Sobczynski
3. Shipping directions to Ron Venezia.
4. Submit Revised Permit Application 3.

CHEVROLET MOTOR DIVISION

General Motors Corporation

Bay City Plant
100 Fitzgerald Street
Bay City, Michigan 48706

May 29, 1979

Dr. Ronald A. Venezia
EPA/IERL
MD 62
Research Triangle Park, North Carolina 27711

Dear Dr. Venezia:

Please find enclosed a copy of Air Use Permit Application No. 385-78, as submitted to the Air Quality Division of the Michigan Department of Natural Resources, requesting approval to burn reclaimed oils containing incidental concentrations of PCB's in our No. 3 boiler. The application includes the following items:

Cover letter to the Michigan Department of Natural Resources (MDNR) from Chevrolet Motor Division (Chevrolet)..
Application to the Michigan Air Pollution Control Commission .
Application Instructions.
Permit Item Sheet.
November 16, 1977 letter to Chevrolet from MDNR (3 pages).
Illustration No. 1 - Fuel Oil Flow Diagram.
Attachment "A" - Response to Nov. 16, 1977 letter (2 pages).
Attachment "B" - Building Detail
Attachment "C" - Pollution Incident Prevention Plan (20 pages).
Attachment "D" - HCL Calculations.
Drawing PE-B-160 sheet 268 - Boiler House Elevations
Drawing PE-H-22 - Plot Plan.
Drawing SA-884 - Boiler Setting Plan.
Drawing SA-888 - Boiler Auxiliaries.
Drawing SA-889 - Boiler Auxiliaries.

In addition, the following correspondence is included as a supplement to the history of the application:

CHEVROLET

CHEVROLET MOTOR DIVISION

General Motors Corporation

Bay City Plant
100 Fitzgerald Street
Bay City, Michigan 48706

May 10, 1978 Memo, MDNR
June 2, 1978 Letter to Chevrolet from MDNR
(2 pages).
June 20, 1978 Staff Activity Report, MDNR
(2 pages).
June 15, 1978 Telegram to MDNR from Chevrolet.
June 28, 1978 Letter to Chevrolet from MDNR.

Should you require additional information with regard to the permit application or the proposed verification burn, please contact myself (ext. 251) or Al Garwick (ext. 257) at (517) 894-4111.

Advance materials and/or test equipment may be shipped to the following address:

Chevrolet Motor Division
Bay City Plant
100 Fitzgerald Street
Bay City, Michigan 48706

Attn: A. P. Garwick Jr.
Plant Engineering Department

D. R. Koenig
D. R. Koenig
Supt. - Maint. & Plt. Eng.

DRK:APG/dar

cc: L. L. Johnson, C.O.W.A.
File (2)

Page 2 of 2

ENVIRONMENTAL ANALYSIS ASSESSMENT

AMBIENT PCB CONCENTRATION ESTIMATES

In the prediction of the maximum concentration of a sensitive pollutant, it is common practice to model the "worst case" conditions that could occur as well as the most probable conditions. This worst case approach involves using not only the maximum pollutant concentration possible emitted but also assumes the pollutant will be dispersed under the meteorological conditions that are least favorable to its dilution.

Table 6 displays the pollutant source information used in various phases of the modeling. These data were obtained from plot plans and reports supplied by General Motors Corporation. Two emission conditions were selected for modeling the impact of the proposed test program. First, the emissions were estimated for the absolute worst case of no PCB destruction at all during the combustion process. The second emission condition modeled was that of 99.9 percent destruction (minimum expected) of PCB during combustion.

While it is difficult to determine the exact atmospheric conditions of wind direction, wind speed, and stability that will result in the maximum concentration for a given source, for elevated point sources, maximum concentrations generally occur with unstable conditions. The test program being proposed will take place in early August (mid-summer) when strong solar radiation could cause the lower atmosphere to be unstable for a significant length of time. It is impossible to predict the exact meteorological conditions during the test period but a very realistic estimate can be made based on historical data. From past data published by the National Weather Service, the wind direction and speed in lower Michigan, during the mid-summer, are southwesterly at 10 mph about 50 percent of the time during the midday hours (the time of strongest instability). Turner[3] states that for wind speeds of 10 mph (4.5 m/s) the stability class most appropriate would be class "B" moderately unstable (this is a valid assumption since stability class "A", extremely unstable, could not exist for the 8 hours of test duration or at wind speeds as high as 10 mph). The meteorologically "worst case" was then chosen as 8 hours of class B instability with southwest winds at 4.5 m/s.

Due to the low stack configuration of the building under test, the modeling was approached from two viewpoints. First, PCB concentrations were predicted for a normal transport of the plume, dispersing it under the worst case meteorological conditions. Both cases of no destruction and 99.9 percent destruction of the PCB were modeled. The second approach was to take that of the plume, due to its low height and ejection speed, being caught in the aerodynamic wake of the building and being dispersed into the small volume directly behind the building as illustrated in Figure 11. Again, both the no destruction and 99.9 percent destruction cases were analyzed.

TABLE 6. SOURCE PARAMETERS FOR MODEL INPUT.

Fuel Rate	4 gal/min	
PCB Concentration in Fuel	50 ppm by weight	
Stack Height (above ground)	18.3 meters	
Stack Diameter	1.07 meters	
Stack Gas Temperature	430°K	
Stack Gas Velocity	7.48 m/s	
PCB Emission Rate	1) No PCB Destruction	0.0107 grams/sec
PCB Emission Rate	2) 99.9% Destruction	1.1×10^{-5} grams/sec
Stack Gas PCB Concentration	1) No PCB Destruction	1603 $\mu g/m^3$
	2) 99.9% Destruction	1.603 $\mu g/m^3$

Above stack parameters will result in plume rise of 26.1 meters.

Effective plume height (stack and plume rise) = 44.4 meters.

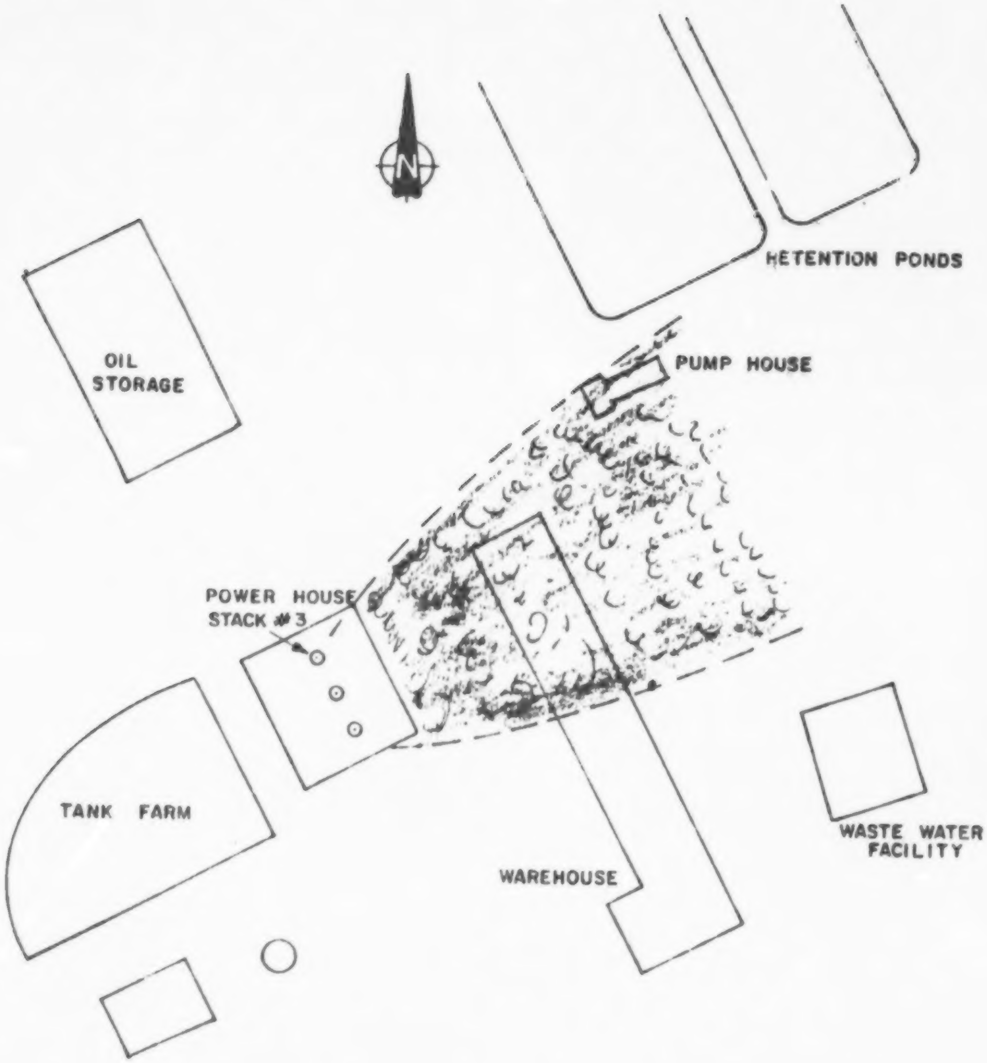
N
RETENTION PONDS
OIL
STORAGE
PUMP HOUSE
POWER HOUSE
STACK #3
TANK FARM
WAREHOUSE
WASTE WATER
FACILITY

Figure 11. Dispersal of plume in aerodynamic wake of building.

PCB concentration estimates for the normal plume approach were based on a steady-state Gaussian plume model developed by Pasquill and Gifford and used by Turner.[3] PCB was assumed to disperse as a gas with no depletion from the plume for this part of the analysis. The plume rise was computed from Briggs[5] and was estimated to be 26.1 meters. This plume rise added to the physical stack height resulted in a final effective plume height of 44.4 meters for a 10 mph (4.5 m/s) wind. The resulting maximum short-term concentration estimates (valid for 1-hr) occurred under stability class "A" with 2 m/s winds. However, this "A" stability condition could not last the 8 hours of test duration so computations of the maximum concentration were made based on class "B" stability also. Then, due to meteorological fluctuations over long time periods, the maximum concentration was reduced by a factor of 0.498[4] for the 8 hour test period. Table 7 presents the short term maximum and 8 hour mean concentrations for the worst case normal plume dispersion case for both no destruction and 99.9 percent destruction of PCB.

The estimated concentrations for the wake dispersing plume were based on the approach suggested by Smith[4] where the emitted pollutant is dispersed into the volume directly behind the building, producing the maximum concentration of PCB directly behind the building. There are no concentration reductions for long time periods applied here however since the plume always disperses into virtually the same volume. The resulting short term maximum and 8 hour mean concentrations for the no destruction and 99.9 percent destruction cases are presented in Table 8.

An attempt was then made to estimate the quantity of PCB which may be deposited on the ground due to normal plume depletion mechanisms. To model the worst case, the least horizontally dispersing plume (smallest ground area) was used with the maximum possible depletion rates to yield highest average PCB loading in the smallest ground area. To make the estimate as conservative as possible, it was assumed that the plume path was identical for all three 8 hour test periods thus depositing the maximum PCB on the smallest ground area. Only the case of no PCB destruction during combustion was investigated for maximum impact. Figure 12 presents a graph developed by Murphy[21] of dry gaseous velocities for a variety of ground covers. The equation solved for deposition velocity was:

$$V_g = \frac{1}{V_a + V_b + V_c}$$

where V_a = a momentum transfer term
V_b = a concentration gradient term
V_c = a surface (ground cover) term.

If it is assumed that the ground cover within 100 Km is predominantly a combination of grass and oak-hickory forest in summer, for a wind speed of 10 mph (4.5 m/s) the average dry deposition velocity from Figure 12 is approximately 1.4 cm/s.

Plume depletion fractions were computed by Markee[6] for a plume under varying stability classes with a variety of deposition velocities. The most

TABLE 7. MAXIMUM CONCENTRATIONS WHEN PLUME DISPERSED DOWNWIND - WORST CASE METEOROLOGY.

Short-term Maximum (1 hr., "A" Stability, 2 m/s wind speed).
Maximum will occur 225 meters to the northeast of the building.

No PCB Destruction	0.376 μg/m^3
99.9% Destruction	3.8×10^{-4} μg/m

8 Hour Mean Concentration (8 hr., "B" Stability, 4.5 m/s wind speed).
Maximum Will occur 320 meters to the northeast of the building.

Reduction Factor due to 8 hr. sampling period = 0.498

No PCB Destruction	0.084 μg/m^3
99.9% Destruction	8.4×10^{-5} μg/m^3

TABLE 8. WORST CASE MAXIMUM CONCENTRATIONS WHEN PLUME DISPERSED IN BUILDING WAKE.

Short-term Maximum (1 hr., "A" Stability, 2 m/s wind speed).

No PCB Destruction	9.74 μg/m^3
99.9% Destruction	9.7×10^{-3} μg/m^3

8 Hour Mean Concentration (8 hr., "B" Stability, 4.5 m/s wind speed).

No PCB Destruction	4.36 μg/m^3
99.9% Destruction	4.4×10^{-3} μg/m^3

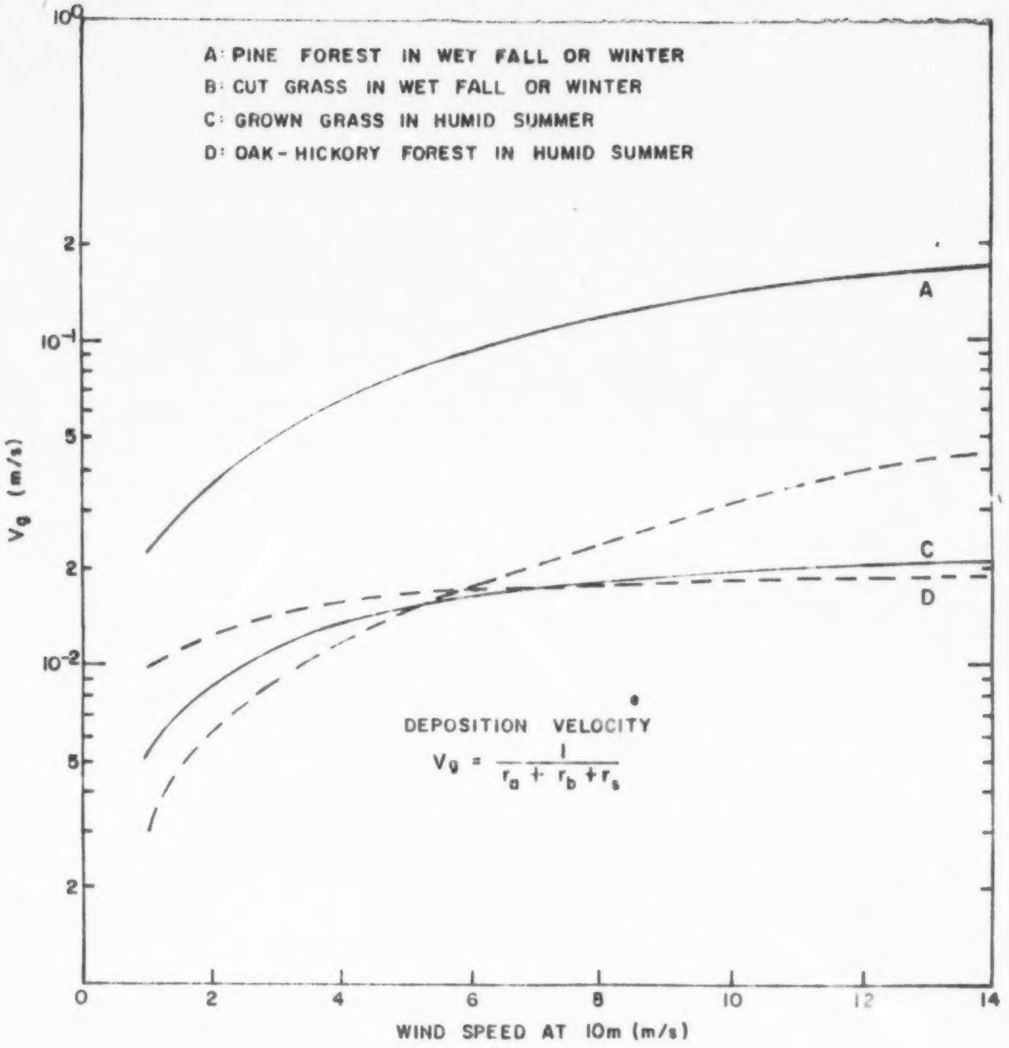

Figure 12. Deposition Velocity versus Wind Speed.

applicable case, and the one used here, was for a 1.0 cm/s deposition velocity. The results of this analysis are presented in Table 9.

Note that 79 percent of the plume is depleted by the downwind distance of 100 Km of 0.85 μg/m^2 over an area of 645 × 10^{6}m^2. However, by breaking the plume into downwind sectors the realism of the estimation can be increased, since (as seen in Table 9) more deposition will occur with closer distances to the stack.

HEALTH AND ENVIRONMENTAL EFFECTS BASED ON WORST CASE EXPOSURE

PCB concentrations in air to which individuals may be exposed as a result of the test schedule have been calculated for a variety of exposure conditions. A worst case exposure would occur if maximum ground level concentrations are assumed to exist in the area immediately downwind of the point of release. Values calculated are based on the assumption of no PCB destruction as well as 99.9 percent PCB destruction during incineration. The 8 hour mean concentrations of PCBs under these conditions are 4.36 μg/m^3 (0.32 parts per billion (ppb)) and 4.4 × 10^{-3} μg/m^3 (3.2 × 10^{-4} ppb), respectively (see Table 8).

TABLE 9. PCB TRANSFER/AREA

	Plume Sector (Km)	Plume depletion		Sector area (10^{6}m^2)	Deposition (μg/m^2)
		%	Grams		
	0-1	11	101.7	.0108	946.
	1-5	17	157.2	2.311	68.
	5-10	11	101.7	6.504	16.
	10-50	30	277.35	173.828	1.6
	50-100	10	92.5	462.250	0.20
Total:	0-100	79	730.4	645.000	1.13

Total: Maximum of 924.5 grams emitted during 24 hrs of testing - No Destruction.

The average respiratory volume of air for adults is 30 m^3 for 24 hours.[7] For the 8 hour duration of one test, this translates to 10 m air respired. Based on our estimated worst case concentrations of PCB (4.36 μg/m^3) an individual would be exposed to a total of 43.6 μg for one test period. Over the 24 hours of the complete test program, this is an exposure to an estimated 130.8 μg PCB.

Potentially adverse health effects due to PCB exposure indicate both short-term (acute) and long-term (chronic) effects. The chronic toxicity of PCB appears to be of greater significance than does acute toxicity. Acute exposure studies have yielded data which show that LD_{50} values for laboratory mammals exposed to a single does of PCB range from 2 to 11 g/kg. Human exposures are unlikely to ever reach such levels. As a long-term concern however, PCBs have been shown to accumulate in body tissues since they are not readily metabolized or excreted. They have been shown to exert toxic efforts on the liver, the gastro-intentinal track, and the central nervous system.[6] PCBs have been implicated as human teratogens and some carcinogenic and embryotoxic effects have been noted in laboratory animals receiving large doses for lengthy periods of time.[9]

We have calculated that an individual may be exposed to 130.8 μg PCB (for the entire duration of the test program) under worst case exposure conditions. Potential detrimental health effects for exposure of individuals to this level of PCBs may be evaluated by contrasting this value with the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for PCBs. TLVs describe levels assumed to be safe based on evidence of both acute and chronic toxic effects to humans, including carcinogenic effects, and on studies of animal toxicity data which describe acute, chronic, and oncogenic responses. TLV concentration levels are time-weighted averages which assume that a worker or other individuals will be continuously exposed to the substance(s) in question 8 hours a day and 40 hours a week, for a normal working lifetime. The ACGIH TLV for PCBs is 37 ppb. Assuming an average respiratory volume, this equates to an 8 hour exposure to a total of 504.1 μg PCB. Direct comparison may be made between this level of PCB and that arising from the test program since they are on an equivalent hourly basis. Total PCBs to which an individual may be exposed based on 8 hours of testing is 43.6 μg, even under worst conditions (assuming no PCB destruction). Based on this comparison, PCB levels arising from the complete test program pose no threat to human health, even assuming worst case exposure.

A limited number of bioassays of PCBs have been performed and additional tests for carcinogenicity and teratogenicity are being conducted. PCBs have produced some carcinogenic responses in rats and mice but the lowest dose resulting in such effects is reported as 1200 mg/kg.[9]

Effects likely to occur from PCB contamination of the environment to plant or animal life may include histological, or other sublethal effects. Aquatic organisms accumulate PCBs from water, dietary sources, and sediment. This cumulative potential of PCBs is of concern in considering toxicity to aquatic life. It has been reported that fish can concentrate 200,000 times more PCBs in their flesh than is present in surrounding water.[12] The indirect toxicity of PCBs to predators through accumulation in tissues of food organisms may cause death from concentrations in water that would not cause a directly lethal effect.

These data have led EPA to propose water quality criteria of 0.001 μg/l (1.0 ppt) PCB for freshwater and marine aquatic life.[13] Also, PCB concentrations in whole fish should not exceed 0.5 mg/kg of the wet weight for protection of fish-eating birds and mammals according to NAS/NAE Water Quality Criteria.[14]

At present, typical values for PCB concentrations in North American fresh waters range from 5-500 or more ppt depending on the industrial effluent or other discharge the waters receive.[9] Values as high as 15,800 ppt have been reported.[9]

The figures in Table 9 may be used to estimate potential environmental effects of the PCB incineration test program. It is assumed that such environmental effects will be totally dependent upon PCB emissions eventually reaching a freshwater source and exerting an effect on aquatic organisms, and through such organisms to mammalian predators and other species. It is likewise assumed that leaching of PCBs deposited on the soil is the mechanism by which they are transported to the freshwater source. Runoff, direct deposition of particulate matter to which PCBs are absorbed, or other potential transport mechanisms have not been considered.

As listed in Table 9, 0.1 km from the point of release, PCB concentrations on the ground level have been calculated to 946 $\mu g/m^2$ assuming no destruction of PCBs, which is a "worst case" concentration. Values calculated assuming 99.9 percent PCB destruction are 1,000 times less or 946 ng/m^2.

During the summer months, the locale in which the test site is situated receives an average of approximately 3 in. of rainfall per month.[15] This is approximately 76 $liters/m^2$. Because solubility of PCBs in water is minimal, leaching will not remove 100 percent of the total present in the soil. Tucker et al. percolated water through columns packed with several types of soil coated with Aroclor 1016 and the effluent water was analyzed for PCBs in one laboratory study. As expected, soils with higher clay content retained PCBs more effectively. Even in the worst case, however, less than 0.05 percent of the total Aroclor present was leached from the soil under the test conditions and after 4 months of exposure.[16] In addition, only the less-chlorinated, more easily degradable isomers were leached. More recent leaching studies involving actual measurements of PCBs after equilibrium conditions were reached in situ have concluded that the total amount of PCBs released from soil due to leaching is approximately 0.2 percent of the total initially present.[17,18]

Taking this latter estimate as worst case leaching and applying it to one model results in a calculated PCB concentration of approximately 26 ppt before dilution by ground-water sources. As mentioned previously, the U.S. Environmental Protection Agency has proposed water quality criteria levels for PCBs in freshwater of 1 ppt.[15] In relating final concentrations of toxic substances in ambient freshwaters to the concentrations released in a dilution on the order of 100,000 or more can be expected. Such dilutions[9,19] would reduce the levels of PCBs from the test program to values well below the EPA water criteria. An undiluted value of 26 ppt is well within the typical background levels now reported for North American freshwaters.[9]

Likewise, it should be reiterated that this concentration (26 ppt) of PCB is based on an absolute worst case model; i.e., no PCB destruction in the stack, maximum deposition of the airborne PCBs on the ground, maximum ground concentration is used for calculating the amount potentially leached, and maximum leaching due to rainwater. If, as is more likely, 99.9 percent of the PCBs are destroyed during combustion, concentrations of PCBs potentially entering ground-water will, even with no further dilution, meet the EPA freshwater criteria.

As Table 10 summarizes, even under worst possible conditions of no PCB destruction during combustion, the potential environmental and health detriment due to release of PCBs by this test program will be negligible.

Table 10. Comparison of Health and Ecological PCB Standards to PCB Levels Resulting From Worst Case Human and Environmental Exposure.[*]

	PCB Level	
	From Air Inspiration (μg)	In Water (ng/l)
Total Human Exposure	130.8	-
Workplace Standard[†]	1512.3	-
Potential Groundwater Level[‡]	-	0.00026
Proposed EPA Level	-	1.0[13]
Typical North American Freshwater Levels	-	5-500[9]

[*] Worst Case exposures based on three 8-hour periods of PCB trial destruction.

[†] ACGIH TLV which is the maximum level considered safe for 8-hour/day, 5-day week continuous esposure.

[‡] Assuming 3 in. rain, 946 μg/m^2 deposition in the 0-1 Km sector and a minimum of 100,000 dilution factor after PCBs reach groundwater.

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Because of the toxicity of chlorinated dibenzofurans, some consideration was given to their potential formation during the test program. Because of the low concentration of PCBs used in the program, and the high destruction efficiency expected, these by-products of incineration will not be formed in any significant concentration from PCBs. In addition, these compounds are photolabile, so it is unlikely that they could accumulate in dispersed emissions resulting from the test.

Inter-Organization

GM

Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, Michigan 48090

Date: June 12, 1979

Subject: June 11, 1979, Meeting Regarding Burning of PCB's at Chevrolet-Bay City

From: A. R. Fisher

To:

Messrs. A. P. Garwick	Chevrolet-Bay City
L. L. Johnson	Chevrolet-Central Office
H. J. Snyder	EPA Washington
R. A. Venezia	EPA Raleigh
S. G. Zelenski	GCA

On June 11, 1979, representatives from the EPA, GCA Corporation and General Motors helped refine the GCA environmental report on burning of PCB's at Chevrolet-Bay City. Also, a response to the permit questionnaire prepared by the Michigan Department of Natural Resources on November 16, 1977, for Chevrolet-Bay City was developed.

As a result of this meeting, it was decided that (1) the EPA Office of Toxic Substances, Office of Chemical Control, would draft a letter for submittal to EPA Region V in support of burning PCB's at Chevrolet-Bay City, and (2) representatives from EPA and General Motors would review the permit application and the GCA report by the end of June with the Michigan Department of Natural Resources prior to submitting the permit.

A R Fisher, Ph.D.

A. R. Fisher, Ph.D.
Plant Environment

jl

cc: G. L. Avery, Michigan DNR
J. P. Chu
W. R. Johnson
N. C. Kachman
R. J. Phillips

GCA/TECHNOLOGY DIVISION

June 15, 1979

Dr. Ron Venezia
U.S. E.P.A.
Chemical Processing Section
IERL
Research Triangle Park, NC 27709

Dear Ron:

After our last meeting in Washington I reevaluated the hours needed to complete the revised task. An additional 150 hours will be sufficient for completion. Extra travel costs of $800 will be required.

The revision of the test plan, especially the monitoring information required of G.M. is more extensive than I had anticipated and will be available later in the week.

Best regards,

Steven A. Zelenski, PhD.
Head, Organic Analytical Section

SZ/gg

URLINGTON ROAD, BEDFORD, MASSACHUSETTS 01730 / PHONE: 617-275-9000

GCA/TECHNOLOGY DIVISION

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June 22, 1979

Dr. Ron Venezia
U.S. EPA
Chemical Processing Section
IERL
Research Triangle Park, NC

Dear Ron;

Enclosed are 12 copies of the final draft of our test plan. I have sent three copies to Al Garwick with instructions that they are not to be used until he receives final approval for their release from you. I have also forwarded three copies to Hal Synder for his review.

Best Regards,

Steven G. Zelenski, Ph.D.

SZ/gg

Enclosures

BURLINGTON ROAD, BEDFORD, MASSACHUSETTS 01730 / PHONE: 617-275-9000

GCA

GCA CORPORATION
Technology Division
Burlington Road
Bedford, Mass. 01730
(617) 275-9000

June 22, 1979

Mr. Al Garwick
Chevrolet Motor Division
100 Fitzgerald Street
Bay City, MI 48706

Dear Al;

Enclosed are three copies of the final draft of our test plan for the PCB trial destruction. These are final drafts and are not to be used until you receive final approval for their release from Dr. Venezia. I have sent them now to facilitate your schedule.

Sincerely,

Steven G. Zelenski, Ph.D.
Head, Organic Analytical Section

SZ/gg

Enclosures

cc: Dr. R. Venezia

GCA

GCA CORPORATION
Technology Division
Burlington Road
Bedford, Mass. 01730
(617) 275-9000

June 22, 1979

Dr. Leo Weitzman
U.S. E.P.A.
26 West St. Clair Street
Cincinnatti, OH 45268

Dr. Weitzman:

Enclosed is GCA/Technology's "Test Plan for the Evaluation of PBC Destruction Efficiency in Industrial Boilers." This document is a final draft and has not been approved for release by Dr. Venezia.

If I can offer any assistance in your project, please let me know.

Sincerely,

Steven G. Zelenski, Ph.D.
Head, Organic Analytical Section

SZ/gg

Enclosure

cc: Dr. R. Venezia

CHEVROLET MOTOR DIVI
General Motors Corporation

Bay C
100 Fitzgeral
Bay City, Michig

July 6, 1979

Control Action Division
Environmental Protection Agency
c/o Mr. H. J. Snyder
6042 Camelback Lane
Columbia, Maryland 20145

Dear Hal:

Please find attached one (1) copy of the air use permit application for burning reclaim oil containing PCBs in our No. 3 boiler. This permit application was submitted to, and received by the Permit Section of the Air Quality Division, Michigan Department of Natural Resources on Friday, June 29, 1979.

One (1) copy of the permit application has also been sent to Region V, Environmental Protection Agency at the address below, as per your telephone request of July 5, 1979. Should either you or Karl have questions regarding the permit application, please contact me at (517) 894-4111 ext. 257.

Alvin P. Garwick, Jr.

Alvin P. Garwick, Jr.
Senior Mechanical Engineer

APG/ag

cc: Region V
Environmental Protection Agency
c/o Mr. Karl Bremer
989 Bosworth
Barrington, Illinois 60010

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Don Koenig - Please Note and return. 8/6/79

JULY 23, 1979

Dr. Howard A. Tanner, Director
Department of Natural Resources
State of Michigan
Stevens T. Mason Building
Box 30028
Lansing, Michigan 48909

Dear Mr. Tanner:

On June 29, 1979, the Chevrolet Division of General Motors Corporation submitted an Air Quality permit application to the Air Quality Division requesting approval to conduct tests at their Bay City, Michigan plant involving low concentration PCB waste oils.

The Environmental Protection Agency has been working closely with General Motors on this project and I wish to take this opportunity to appraise you of our objectives in pursuing this study at Bay City and seek your support.

When the Agency was assessing the possible alternatives for modifying the EPA to PCB Disposal and Marking regulations to include additional requirements for the disposal of low concentration PCB wastes, it became apparent that we would have to include additional disposal alternatives in the new rules in order to provide sufficient capacity for this increased waste volume. The most viable option was the use of high efficiency boilers for burning waste mineral oil dielectric fluid and other waste oils containing 500 ppm or less of PCBs.

The combustion data available to EPA boiler experts clearly indicated that properly operating high efficiency boilers could destroy PCBs when they are fed to the boiler in relatively low concentrations. We want to provide additional confirmation of this technique by conducting tests at an industrial-type high efficiency boiler.

EPA's Office of Research and Development and its contractor, GCA Corporation of Bedford, Massachusetts, would conduct the sampling and provide the analytical chemistry support of the test, and GM's Bay City personnel would be responsible for operating the boiler and providing the necessary physical facilities.

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The tests would involve three runs of 250 gallons of industrial waste oil containing 500 ppm PCBs with the waste oil comprising only 10 percent of the total fuel to the boilers. A fourth test of the waste oil without PCBs would be run as a control. We expect at least 99.9 percent destruction of the PCBs.

We have included an environmental analysis of the probable impact of this test on the surroundings area, and, even for a worst case condition, we believe that the impact would be minimal.

In order to provide additional information to prospective high efficiency boiler users as soon as possible, we want to move expeditiously in conducting these tests. In order to meet our timetable for these objectives, I would like to request that you determine that the decision on the test permit application is not a "Major State Action" and thereby preclude the requirement for a State environmental impact statement.

If General Motors is interested in pursuing this process on a long-term basis after the tests are completed and the data is analyzed, then public comment and a hearing might be more useful.

EPA staff members have been working closely with Gerald Avery and George Su of your Department on this project, and we appreciate their time and effort. The EPA project personnel hope to be able to meet with your air quality staff in the middle of July to finalize the plans for the project. Your support for this undertaking would be greatly appreciated.

Sincerely yours,

/S/ Original Signed by John McGuire

John McGuire
Regional Administrator

7-24-79

CHEVROLET-BAY CITY
PCB MEETING

Name	Group
Paul Shutt	DNR, Jerry Avery's Supervisor, Supervisor of Engineering
John Vail	DNR, Air Quality, Permits
Al Garwick, Jr.	Chevrolet-Bay City
L.L. Johnson	Chevrolet Central Office, Warren, Michigan
Y.J. Kim	EPA, Region V, (312) 253-2197, Chicago
Phil Synder	EPA, Washington, D.C.
Dave Sanchez	EPA, IERL, Research Triangle Park, N.C.
Ron Venezia	EPA, IERL, Research Triangle Park, N.C.
Anthony R. Fisher	General Motors Environmental Staff
Steven G. Zelenski	GCA/Technology Division
George Su	DNR - Air Quality Division

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July 27, 1979

Mr. Alvin P. Garwick, Jr.
Chevrolet Motor Division
100 Fitzgerald Street
Bay City, Michigan 48706

Dear Mr. Garwick:

As you have requested during the meeting on your proposal for test burning of PCB-contaminated mineral oil, I am enclosing the vapor pressure data and related materials you could use in estimating the PCB emissions from storage tanks.

If there is anything else I can do for you, please feel free to drop me a line, or call me at (312) 353-2197.

Sincerely,

Y.J. Kim, Chemical Engineer
WASTE MANAGEMENT BRANCH (5AHWM)

Enclosures:

cc: S.G. Zelenski
GCA Corporation

Gerald Avery
Michigan DNR

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TO: Gerald F. Regan, Chief, Air Surveillance Branch

DATE: MARCH 5. 1976

FROM: Technical Advisor, Special Projects Section
Air Surveillance Branch

SUBJECT: Calculation of PCB Air Emissions from Storage and Dispensing Operations at the Krummrich Plant of Monsanto

Potential air emissions from the storage and dispensing of PCB were calculated based on information supplied by Monsanto. The results of these calculations are:

Storage tanks for virgin product	- 597.4 kg/year
Product loading	- 0.0184 kg/year
Storage and handling waste aroclors	- 0.00066 kg/year

R. Edwin Zylstra

Attachment (Calculations)

For Vapor Pressure of Mineral Oil I believe you could use No. 2 Fuel Oil data (abt. 150°F Flash, Distillate) which is about 0.5 mmHg at 60°F. (MW ≈ 200) Both Figure 5-77 and Table 8-2 gives similar values.

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July 27, 1979

Dr. George C. Su
Supervisor, Technical Service Section
Air Quality Division
Michigan Dept. of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Dear George:

I am enclosing the summary of data on the PCB levels in ambient air which were abstracted from "Directors Report to the Environmental Assessment Board Regarding Burning of PCBs at St. Lawrence Cement, Mississauga," dated December, 1978.

If there is anything else on PCBs that I can help you with, please feel free to call me at (312) 353-2197.

Sincerely,

Y.J. Kim, Chemical Engineer
Waste Management Branch (5AHWM)

Enclosures

cc: A.P. Garwick, Jr. - Chevrolet Motor Div.
S. G. Zelenski - GCA Corporation

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SUMMARY

.2 PCB's in Ambient Air

LOCATION	PCB ANALYSIS	DATE OF SAMPLE	REMARKS
Sheridan Park, Ont.	12 ng/m3	1972	Gas Chromatography Electron Capture
Hamilton, Ont.	100 ng/m3	1972	Detector Method (B-C/ECD)
Sheridan Park	1 ng/m3	1974- thru	" "
Hamilton, Ont.	2 8 ng.m3	1975	
Bermuda	0.5 ng/m3 (0.3 0.6 ng)	1973	Univ. of R.I.
Between Bermuda & Mainland	1 ng/m3 (0.7 1.6 ng)	1973	"
Univ. of R.I. Campus	4 ng/m3 (2.0 6.0 ng)	1973	"
Providence, R.I. (Urban Location)	9 ng/m3 (One Sample)	1973	"
Atlantic, 2000 km off	0.05 ng/m3	1973	Woods Hole Oceanographic
Off Mass Coast	5.0 ng/m3	1973	Institute, Mass.

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SUMMARY

.2 PCB's in Ambient Air (Cont'd)

LOCATION	PCB ANALYSIS	DATE OF SAMPLE	REMARKS
Fort Collins, Colorado	2 15 ng/m3	1975-1976	
Miami, Fla	1 37 ng/m3	"	
Lafayette, Ind.	2-14 ng/m3	"	
Jackson, Miss.	1 17 "	"	
Harrisburg, Penn.	2 18 "	"	
Gainsville, Fla.	6 20 "	1977/1978	U.S. EPA Data
PCB Burial Site, New Bedford, Mass	1300 "	6/77	"
" " Upwind	9 "	1/78	"
" " On Site	21 "	"	"
Downwind	13 "	"	"
PCB Filling PLT. Downwind	490 "	"	"
" " Upwind	6 "	"	"
" " Downwind	19 "	"	"
Hamilton	Avg 10 (3-29) "	7/1976	Gov't of Canada
Peterborough	Avg 5 (2-10) "	"	"
London	Avg 5 (1-10) "	"	"
Toronto	Avg 4 (2-5) "	"	"
Sarinia	(one) 4 "	"	" Sarini
Windsor	Avg 4 (1-6) "	"	"
Toronto, Downtown	Avg 31 (18-67) "	8/1978	"
Orangeville, Ont.	Avg 7 (3-11) "	"	"

Avg. PCB Conc. of Innocent, Ambient Air: 0.5 - 100 ng/m3.

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a) No significant surface water contamination is expected from the St. Lawrence Cement site because of precautions taken there, but should it occur, the municipal water supply would not be contaminated directly. Direct human exposure by this route would be negligible.

b) Contaminated soils, produced by spill or leakage, for example, will be removed to a secure disposal site, so that again, no direct human exposure to this material would occur.

c) Lake and stream sediments and sewage sludges lead to no direct human exposure in Mississauga.

d) Evaporation of PCBs from spilled material, soils, sediments, sludges and water leads to direct human exposure through ambient air, so that measured concentrations in this medium represent contributions to direct human exposure from all sources.

2.2.2 Summary of Reported Ambient Air Data - Ontario and Elsewhere

Experimental data for the assessment of airborne PCB are very limited. Since 1970, the Ministry of the Environment has initiated or performed several studies on PCB. The first study was funded by research grants to Ontario Research Foundation between 1971 and 1975 (4,5). Laboratory development work and subsequent measurements of airborne PCB in Hamilton, Toronoto, and Mississauga (Sheridan Park) were the first attempt anywhere in the world to

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measure PCB in ambient air. Only a few samples were collected and analyzed by a gas chromatography-electron capture detector method (GC/ECD). Reported results in 1972 ranged from about 12 ng m^{-3}* at Sheridan Park to about 100 ng m^{-3} of Aroclor at a site in Hamilton. The results reported for 1974/1975 were about 1 ng m^{-3} at Sheridan Park, 2 to 8 ng m^{-3} at Hamilton and 1 to 3 ng m^{-3} at Toronto.

A research group from the University of Rhode Island (6) report PCB concentrations in 1973 of about 0.5 ng m^{-3} (with a range of 0.3 to 0.6 ng m^{-3}) for Bermuda, about 1 ng m^{-3} (range: 0.7 to 1.6 ng m^{-3}) over the North Atlantic Ocean between Bermuda and the mainland, about 4 ng m^{-3} (range 2 to 6 ng m^{-3}) at the University, and one value of 9 ng m^{-3} in urban Providence, Rhode Island.

Another research group from Woods Hole Oceanographic Institute, Massachusetts (7) found PCB levels, also during 1973, as low as 0.05 ng m^{-3} in air over the Atlantic Ocean, 2000 km from the North American mainland, ranging to about 5 ng m^{-3} just off the Massachusetts coast. The concentrations decreased exponentially with distance from the mainland.

The point of quoting these results is to indicate that measurable quantities of PCBs in the several nanogram per cubic meter range have been reported for areas with no local industrial sources.

*FOOTNOTE: ng m^{-3} is used throughout the Report to designate the concentration of chemicals in air. It is an abbreviation for "nanograms per cubic meter." This unit is 0.000000001 grams of substance in each cubic meter of air. Once microgram per cubic meter ($\mu g\ m^{-3}$) is one thousand times greater than 1 ng m^{-3}.

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In a continuing survey for pesticides and PCB at selected sites in the U.S.A., preliminary unpublished results indicated the following range of PCB daily average concentrations at sites away from known industrial sources of PCB in 1975/1976:

Fort Collins, Colorado	2 to 15 ng m^{-3}
Miami, Florida	1 to 37 ng m^{-3}
Lafayette, Indiana	2 to 14 ng m^{-3}
Jackson, Mississippi	1 to 17 ng m^{-3}
Harrisburg, Pennsylvania	2 to 8 ng m^{-3}

A more recent study by the U.S. Environmental Protection Agency (EPA) during 1977/78 found concentrations (collected during periods from 30 minutes to 12 hours) in air at Gainesville, Florida, in the range of about 6 to 20 ng m^{-3} PCB (8). The same research team made measurements in June, 1977 at a landfill site near New Bedford, Massachusetts, where previously some 22,000 Kg of PCB had been disposed of. They found levels up to 1300 ng m^{-3} of PCB. At the same site in January, 1978, concentrations of PCB upwind, at the site, and downwind of the site, were about 9, 21, and 13 ng m^{-3}, respectively. Concentrations upwind of two users of PCBs (capacitor filling) were 6 and 19 ng m^{-3}, and downwind of one user as high as 490 ng m^{-3}.

During the summer of 1976, the Ministry conducted a province-wide survey oriented to research and method development for sampling and analysis of PCBs (9). The concentrations of PCB for the cities included in the survey were (24-hour averages):

province

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Hamilton	3 to 29 ng m^{-3};	average 10 ng m^{-3}
Peterborough	2 to 10 ng m^{-3};	average 5 ng m^{-3}
London	1 to 10 ng m^{-3};	average 5 ng m^{-3}
Toronto	2 to 5 ng m^{-3};	average 4 ng m^{-3}
Sarnia	4 ng m^{-3} (only 1 sample)	
Windsor	1 to 6 ng m^{-3};	average 4 ng m^{-3}

A very recent study by the Ministry during August, 1978, at 880 Bay Street, in downtown Toronto and at a semi-rural site near Orangeville gave the following results (24-hour averages):

880 Bay Street	18 to 67 ng m^{-3};	average 31 ng m^{-3}
Orangeville	3 to 11 ng m^{-3};	average 7 ng m^{-3}

Each of the above surveys or studies was of a research nature and produced a very limited set of data, but the aggregate of all of these studies provides a reasonable number of typical concentrations of airborne PCBs at a variety of sites with which to compare the measured concentrations in Mississauga (Section 4.2).

2.2.3 PCB Inventories in Ontario

According to statistics compiled by Environment Canada, and provided by Environmental Protection Service, Ontario Region (10), current inventories of PCB in Ontario as of September, 1978, may be summarized as follows:

	PCB in Use	PCB in Storage	In Storage for Disposal
Quantity in Kg	8,565,185	258,643	203,023
Quantity in pounds	18,882,806	570,204	447,584
Volume in gallons	1,258,853	38,013	29,839

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Clarence Buckley of Monsanto estimated that storage and loading operations at the plant would displace the following volume of headspace gases:

1. Storage tanks 635,000 ft^3
2. Loading 460,000 ft^3

Calculation of emissions:

From Fig. 2.2 from the Draft Mitre report the vapor pressure of Aroclor 1242 is 3 mm Hg at 100°C and 10^{-4} at 21°C. The aroclors are stored at 100°C. It may be assumed that the temp. in the tanks being loaded would be approximately 70°F (21°C).

From Dolton's law of partial pressure:

$Bx = \frac{Px}{P\ mix.}$ where Bx = proportion by volume of a gas component

Px = partial pressure of gas component and
B mix. = absolute pressure of gas mixture.

$Bx = \frac{3}{760} = \frac{0.0039}{1}$ or 3900 ppm at 100°c

To change ppm to mg/M^3 use the following formula:

$$mg/M^3 = ppm \times \frac{mol.\ wt.}{molecular\ volume}$$

mol. wt. = 261

molecular volume = 30.62 liters/mol. at 100°C

$$mg/M^3 = 3900 \times \frac{261}{30.62} = 33242$$

Emissions from storage tanks:
Emissions kg/year = Vol. of gas displaced/year x concentration of PCB

$$Kg/yr = 635000\ ft^3 \times 0.0283\ \frac{M^3}{ft^3}\ 33242 \times \frac{1\ kg}{10^6\ mg}$$

Kg/year = 597.4

Emissions from loading operations

$$Bx = \frac{Px}{P\ mix.} = \frac{10^{-4}}{760} = 1.3 \times 10^{-7} \text{ or } 0.13\ ppm$$

$$mg/M^3 = 0.13 \times \frac{261}{24.04} = 1.41\ mg/M^3$$

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Emissions:

$$\text{Kg/yr} = 460{,}000 \times 0.0283 \times 1.41 \times \frac{1\ \text{kg}}{106\ \text{mg}}$$

$$\text{Kg/yr} = 0.0184$$

Emissions from handling of waste aroclors:

Total waste material received into plant as reported by Monsanto for 9 months of 1975 - 1,431,000 lbs. Assume that all this material is received and stored at 70°F and that it displaced an equal volume of tank headspace gas at 70°F.

$$\text{Volume of produce} = 1{,}431{,}000\ \text{lbs} \times \frac{1\ \text{gal}}{11.5\ \text{lbs}} \times 3.785\ \frac{\text{liter}}{\text{gal.}}$$

$$\frac{1}{\text{X}10^3}\ \frac{\text{liters}}{\text{M}^3} = 471\ \text{M}^3$$

The concentration would be the same as in the loading operation that is 1.41 mg/M .

Emissions:

$$\text{Kg/yr} = 471\ \text{M}^3 \times 1.4\ \text{mg/M}^3 \times \frac{1\ \text{kg}}{10^6\ \text{mg}}$$

$$\text{Kg/yr} = 0.00066$$

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Table 1.3.2-1

Solubility, Vapor Pressure and Halflife for Vaporization from Water of Selected Aroclors at 25°C

PCB Type	Solubility (mg/1)	Vapor pressure (mm Hg)	Theoretical halflife for vaporization from 1 m water column
Aroclor 1242	0.24	4.06×10^{-4}	5.96 hr
Aroclor 1248	5.4×10^{-2}	4.94×10^{-4}	58.3 min
Aroclor 1254	1.2×10^{-2}	7.71×10^{-5}	1.2 min
Aroclor 1260	2.7×10^{-3}	4.05×10^{-5}	28.8 min

CHEVROLET MOTOR DIVISION

General Motors Corporation

Bay City Plant
100 Fitzgerald Street
Bay City, Michigan 48706

July 27, 1979

Air Quality Division
Michigan Dept. of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Attn: John Vial

This letter is intended to confirm our telephone conversation of July 25, 1979 regarding additional information required for air use permit application 484-79 (burning reclaim oils containing PCB's) and to present that information to participants of the July 24, 1979 meeting in Lansing.

I have indicated below the name of the individual(s) who will supply the required information, and ask them (with this letter) to provide that information directly to you, with a copy to me for our permit application file.

The additional information required is as follows:

1. The measuring accuracy of the carbon monoxide and excess oxygen monitors and of the PCB sampling train/quantification process for the verification burn will be provided by Dr. Steve Zelenski.

2. Ambient levels of PCB's in various cities will be provided by Mr. Y. J. Kim. PCB exposure limits will be provided by Dr. Zelenski and Mr. Hal Snyder. This information will be used for comparison with the expected concentrations from the verification burn.

3. PCB emissions from the various storage tanks will be provided by Mr. Al Garwick from sample calculations provided by Mr. Kim.

4. The measuring accuracy of carbon monoxide and excess oxygen monitors which might be installed for permanent monitoring of reclaim oil burning will be provided by Mr. Garwick (and any others who can assist).

5. The location of all existing and proposed check valves for the reclaim oil system will be provided by Mr. Garwick.

Mr. John Vial
Page 2
July 27, 1979

In addition, page 4 of Attachment "A" will be revised to correct the technical errors in item No. 17, which you and I have discussed.

Should you or any of the others require additional information or assistance, please contact me at (517) 894-4111, Ext. 257.

Alvin P. Garwick, Jr.
Alvin P. Garwick, Jr.
Sr. Mech. Engr.

cc:	Gerry Avery	(517) 322-1333	
	✓Tony Fisher	(313) 575-~~8613~~	8609
	✓Larry Johnson	(313) 575-8961	
	✓Y. J. Kim	(312) 353-2197	
	Dave Sanchez	(919) 541-~~[illegible]~~	2547
	Paul Shutt	(517) 322-1333	
	Hal Snyder	(202) 755-1188	
	George Su	(517) 322-~~1333~~	1339
	~~Ron Venezia~~	~~(919) 541-2547~~	
	Steve Zelenski	(617) 275-9000	

GCA

GCA CORPORATION
Technology Division
213 Burlington Road
Bedford, Massachusetts 01730
(617) 275-5444
Telex 923339

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17 August 1979

Air Quality Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan

Attention: Mr. John Vial

Gentlemen:

This letter provides certain data requested of GCA/Technology Division by you or George Su at the July 24, 1979 meeting in Lansing. Specifically, the enclosures include:

1) the specifications relative to the operation of the continuous monitors,
2) the collection efficiencies for several PCB isomers on three different adsorbents including the Florisil which will be used at the test,
3) a brief discussion of our approach to utilizing a field spike to provide constant monitoring of the efficiency of both the sampling and analysis procedures, and
4) further discussion of the potential health effects due to the trial destruction burn.

If you need any other information, please contact me.

Sincerely,

Steven G. Zelenski, Ph.D.
Head, Organic Analytical Laboratory

SGZ/jpm
cc: D. Sanchez G. Su
H. Snyder
G. Avery
A. Garwick
K.T. McGregor

Encls (4)

GCA
TAD #6

GCA CORPORATION
Technology Division
Burlington Road
Bedford, Mass. 01730
(617) 275-9000

6 September 1979

Mr. John Vial
904 Thomas L. Parkway West
Lansing, Michigan

Dear John:

Enclosed is the information I indicated I would send to you concerning the OSHA standards. I hope this helps to clarify any remaining questions.

If I can be of further assistance, please do not hesitate to call.

Sincerely,

Steve
Steven G. Zelenski, Ph.D.
Head, Organic Analytical Laboratories

SGZ/jpm

Encls (2)

cc: KTM (bcc)

Enclosure 1:

PCB Regulations:

Under the provisions of CFR Title 29, Chapter XVII, Section 1910.1000 of Subpart 2 (July 17, 1979), the OSHA 40 hour/week limit for Aroclor 1242 is 1 mg/m^3 and for Aroclor 1254, it is 0.5 mg/m^3.

In September, 1977, NIOSH recommended a time-weighted average for all PCBs of 1.0 μg/m^3. However, the OSHA standard has not been changed.

Enclosure 2:

Time-averaged PCB Concentration From 2-Minute Release

To make the estimate as realistic as possible, the change of meterology along with the long averaging time (10 hour average) must be allowed. Therefore, the problem will be approached as such: assume a 2-minute undestroyed PCB release at 1300 hours during the test with the following 10 hours meterology as listed in Table 1. After this concentrated 2-minute release, the PCB emissions drop to an assumed background concentration in the fuel oil (1 ppm or 1/50 of the concentration in the PCB oil).

The resulting concentrations by minute of the 10 hours is presented in Table 2, assuming it takes 1 minute for the maximum ambient concentration to be reached, and 1 minute for it to decline to the low background fuel oil concentration. This assumed background oil concentration is then affected by the following 10 hours of meterology discussed above.

Table 1. Representative 10-Hour Meterology

Hour	Stability Class	Wind Speed (m/s)
1300-1400	A	2
1400-1500	A	2
1500-1600	B	3
1600-1700	B	3
1700-1800	C	4
1800-1900	C	4
1900-2000	D	4.5
2000-2100	D	4.5
2100-1100	D	4.5
2200-2300	D	4.5

Table 2. Average Minute Concentrations of PCB After 2-Minute Release

Duration In Minutes	Concentration µg/m^3	Comments
1	4.87	Increasing to Peak
2	9.74	Peak - 2 Minutes
1	4.87	Decreasing to Normal Oil Level
56	0.194	Rest of 1300-1400 Hours
60	0.194	1400-1500 Hours
120	0.128	1500-1700 Hours
120	0.096	1700-1900 Hours
240	0.086	1900-2300 Hours
600 Minutes (10 Hours)		

.68 µg/m^3

The time-average concentration for a 10-hour period would then be 0.165 μg/m^3. This is significantly less than the 1.0 μg/m^3 10-hour NIOSH recommendation for occupational exposure, and clearly less than the present OSHA regulation of 0.5 to 1 mg/m^3. The average concentration for the first hour after the release would be 0.67 μg/m^3.

GCA/TECHNOLOGY DIVISION

TO: A. Engelman

DATE: 14 September 1979

FROM: S. G. Zelenski SGZelensk

SUBJECT: Supplement To Memo Of 10 September 1979 (1-614-043)

Additional manhours are required to meet the information needs of the State of Michigan, Department of Natural Resources, before they can process a permit application from GM for a trial destruction burn of PCBs. More details concerning the sampling methodology and projected health effects as well as refinements in the deposition modeling and projected effects have been supplied. Several additional meetings have been held in Lansing than expected, and one more meeting in Lansing is anticipated.

In addition, more hours will be required to reassemble, clean and test the sampling train and continuous monitoring equipment before the projected sampling trip in October. This effort will be required to insure that the lapse of time between the original preparation and the projected sampling period does not affect the integrity of the sampling equipment.

/jpm

cc K.T. McGregor

CHEVROLET MOTOR DIVISION

General Motors Corporation

Bay City Plan
100 Fitzgerald Stree
Bay City, Michigan 4870

September 18, 1979

United States of America
Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

Attn: Mr. Karl L. Klepitsch, Jr.

On June 29, 1979, the Bay City Plant, Chevrolet Motor Division, General Motors Corporation submitted an air use permit application to the Air Quality Division of the Michigan Department of Natural Resources for burning reclaim oil containing PCB concentrations of 500 ppm or less in an existing steam boiler at this location. Complete copies of that permit application were submitted to Mr. H. J. Snyder of E.P.A. Control Action Division and Mr. Karl Bremer of E.P.A. Region V on July 6, 1979 (a copy of the letter of transmittal is attached).

Conditional upon approval of the permit application by the Michigan Air Pollution Control Commission at their October 16, 1979 meeting, the verification burns described in the permit application will be conducted during the week of October 22, 1979. Pursuant to the notification requirements of 40 CFR part 761 for disposal of liquid wastes with 50 to 500 ppm PCB, approval of the Region V Administrator is required for these verification burns. Please consider this letter and the information previously submitted to Mr. Bremer as our request for approval.

Should further information be required, please contact this office at (517) 894-4111 extension 257.

D. R. Koenig

D. R. Koenig
Supt. - Maint. & Plt. Engr.

DRK:APG/dar

cc: Dave Sanchez EPA/IERL
L. L. Johnson C.O.W.A.
File

Reproduced from best available copy.

NOTICE OF AIR POLLUTION COMMENT PERIOD AND PUBLIC HEARING

Notice is hereby given that the staff of the Michigan Air Pollution Control Commission will hold a public comment period until October 15, 1979, and a public hearing on October 16, 1979, to afford all interested citizens the opportunity to comment on the Commission staff's proposed conditional approval of GENERAL MOTORS CORPORATION, CHEVROLET MOTOR DIVISION'S Permit to Install equipment to burn oil containing polychlorinated biphenyls (PCB) in an existing oil-fired boiler proposed for location at 100 Fitzgerald Street in Bay City, Michigan.

Copies of the Commission staff's analysis and proposed permit conditions are available for inspection at the following locations:

BAY CITY:	Bay County Health Department, Washington Park Plaza, 301 Second Street.
SAGINAW:	Air Quality Division, Department of Natural Resources, Washburn Building, Room 202, 1230 South Washington.
LANSING:	Air Quality Division, Department of Natural Resources, State Government Secondary Complex, General Office Building, 3rd Floor, 7150 Harris Drive.

All persons are encouraged to present their written views on the proposed permit action. Written comments should be sent to the Department of Natural Resources, Air Quality Division, P.O. Box 30028, Lansing, Michigan, 48909, to the attention of the Chief of the Permit Unit. All statements received by Monday, October 15, 1979, will be entered into the permit record.

The public hearing will be held during the regular monthly meeting of the Michigan Air Pollution Control Commission on Tuesday, October 16, 1979, beginning at 9:00 a.m., at Holly's at the Inn, 3450 Hoyt Street in Muskegon Heights, Michigan.

MICHIGAN AIR POLLUTION CONTROL COMMISSION

Delbert Rector

Delbert Rector, Executive Secretary

9/19/79

PROPOSED SUPPLEMENT TO PERMIT No. 484-79

Chevrolet Motor Division, GMC
Bay City, Michigan

DRAFT

Drafted September 20, 1979

GENERAL CONDITIONS

1. Applicant shall demonstrate compliance with all Commission rules and with all specific conditions of this permit prior to issuance of the Permit to Operate.

2. The restrictions and conditions of this Permit to Install shall apply to any person or legal entity which now or shall hereafter own or operate the facilities for which this Permit to Install is issued. The Applicant shall immediately notify the Commission of such change in ownership or principal operator status of this facility.

3. Act No. 53 - Applicant shall notify any public utility of any excavation, tunneling and discharging of explosives or demolition of buildings which may affect said utility's facilities in accordance with Act No. 53 of the Public Acts of 1974, being Sections 460.701 to 460.718 of the Michigan Compiled Laws and comply with each of the requirements of that Act.

4. Rule 21(4) - Trial operation of the equipment is permitted until the Commission acts upon the Permit to Operate.

5. Rule 29(2) - Not more than 30 days after completion of the installation, the Applicant shall apply, in writing, to the Commission for a Permit to Operate. Completion of the installation is deemed to occur not later than commencement of a trial operation pursuant to Rule 21(4). Written application should be sent to: Chief, Permit Unit, Air Quality Division, Department of Natural Resources, P.O. Box 30028, Lansing, Michigan 48909.

6. Rule 29(3b) - Operation of this facility shall not interfere with the attainment or maintenance of the air quality standard for any air contaminant.

7. Rule 29(3d) - Operation of this facility shall not result in substantial deterioration of air quality.

8. Rule 46 - Operation of this facility shall not result in the emission of an air contaminant which causes or will cause detriment to the safety, health, welfare or comfort of any person or which causes or will cause damage to property or business.

9. Rule 21 - Applicant shall not reconstruct, alter, modify, expand or relocate this facility unless plans, specifications and an application for a Permit to Install are submitted to and approved by the Commission.

10. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

11. Notification of any malfunction of process or control equipment resulting in emissions in violation of the Commission rules or of any permit conditions should be made to the District Engineer. Such notice should be made as soon as possible but not later than 9:00 A.M. of the next working day. The notice shall include a program of corrective action and shall be confirmed in writing.

PROPOSED SUPPLEMENT DRAFTED September 20, 1979

DRAFT

Chevrolet Motor Division, GMC
Permit No. 484-79
Page 2

SPECIAL CONDITIONS

12. The applicant shall not incinerate PCB contaminated oil in boiler No. 3 except as outlined in the verification test burn procedures, unless written approval has been received by the Chief, Air Quality Division. Approval to burn PCB contaminated oil on an ongoing basis is contingent upon the following:

    a. Verification that the destruction efficiency of PCB is greater than 99.9%;

    b. The submission of specifications for acceptable combustion monitoring instrumentation; and

    c. Upon request, the submission of an acceptable environmental assessment report.

13. The applicant shall conduct the test burn in strict accordance with the submitted test procedure. Any variance from the submitted test procedure shall not be implemented without the approval of the Air Quality Division.

14. The applicant shall verify the combustion efficiency of the boiler under the anticipated test conditions. The test program shall not be initiated unless it has been demonstrated that carbon monoxide levels do not exceed 50 ppm at the proposed test conditions with at least 3% excess oxygen.

15. The applicant shall operate this boiler under steady state or base load conditions while burning PCB contaminated oil. Fuel oil flow rate and air flow rate shall be maintained at constant levels. In no event shall the furnace be operated at less than 25% of full rated capacity while burning PCB contaminated oil .

16. The applicant shall equip the boiler with instrumentation and control capable of continuously monitoring excess oxygen, carbon dioxide, and carbon monoxide concentrations and opacity levels in the boiler flue gases prior to the verification test burn.

17. The applicant shall not incinerate PCB oil in the boiler unless all of the following conditions are met:

    a. The contaminated mineral oil (maximum PCB concentration of 500 ppm) shall be no more than 10% of the total fuel feed rate.

    b. The contaminated oil shall not added to the combustion chamber during boiler start-up or shut-down operations.

DRAFT

c. The flue gas excess oxygen content shall be in excess of 3%.

d. The flue gas carbon monoxide level shall not exceed 50 ppm.

e. The primary fuel and mineral oil feed rates shall be continuously monitored. The selected primary fuel flow rate shall not be less than the flow rate corresponding to 25% of full rated capacity.

f. The boiler shall be at a level of output no less than the output at which the carbon monoxide, carbon dioxide, and excess oxygen levels were measured.

g. Windbox differential pressure shall beat least 0.5" WC.

In the event that any of the above conditions are violated, the flow of PCB contaminated oil to the furnace shall immediately cease.

18. All instruments and control for combustions control and in stack monitoring shall either be self-calibrating or shall be calibrated before initiation of this test. The instruments and controls subject to this condition shall include, but may not be limited to, the following:

a. opacity monitor
b. fuel flow measuring devices
c. excess oxygen monitor
d. carbon dioxide monitor
e. carbon monoxide
f. flame scanners

19. Except for the verification burn, the applicant shall incinerate only PCB waste oil generated within the plant premises.

20. The exhaust gases shall be discharged unobstructed vertically upwards to the atmosphere from a stack with a maximum diameter of 3.5 feet and at an exit point not less than 65 feet above ground level.

DJV:mb

NOTICE OF AIR POLLUTION COMMENT PERIOD AND PUBLIC HEARING

Notice is hereby given that the staff of the Michigan Air Pollution Control Commission will hold a public comment period until October 15, 1979, and public hearings on October 11, 1979, and October 16, 1979, to afford all interested citizens the opportunity to comment on the Commission staff's proposed conditional approval of GENERAL MOTORS CORPORATION, CHEVROLET MOTOR DIVISION'S, Permit to Install equipment to burn oil containing polychlorinated biphenyls (PCB) in an existing oil-fired boiler located at 100 Fitzgerald Street in Bay City, Michigan.

Copies of the Commission staff's analysis and proposed permit conditions are available for inspection at the following locations:

BAY CITY:	Bay County Health Department, Washington Park Plaza, 301 Second Street.
SAGINAW:	Air Quality Division, Department of Natural Resources, Washburn Building, Room 202, 1230 South Washington.
LANSING:	Air Quality Division, Department of Natural Resources, State Government Secondary Complex, General Office Building, 3rd Floor, 7150 Harris Drive.

All persons are encouraged to present their written views on the proposed permit action Written comments should be sent to the Department of Natural Resources, Air Quality Division, P.O. Box 30028, Lansing, Michigan, 48909, to the attention of the Chief of the Permit Unit. All statements received by October 15, 1979, will be entered into the permit record.

THE OCTOBER 11, 1979, PUBLIC HEARING WILL BE HELD AT 7:30 P.M. AT THE COUNTY BUILDING, 515 CENTER AVENUE, BAY CITY, MICHIGAN. The previously announced public hearing will be held during the regular monthly meeting of the Michigan Air Pollution Control Commission on Tuesday, October 16, 1979, starting at 9:00 a.m., at Holly's at the Inn, 3450 Hoyt Street, Muskegon Heights, Michigan.

MICHIGAN AIR POLLUTION CONTROL COMMISSION

Delbert Rector

Delbert Rector, Executive Secretary

9/28/79

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY DIVISION
STAFF ACTIVITY REPORT

October 16, 1979

Applicant

Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, Michigan 48706

Permit to Install No. 484-79: Permit to incinerate waste oil containing 500 ppm or less of polychlorinated biphenyls (PCB's)[1] in Chevrolet Motor Division's Industrial Boiler No. 3.

Significant Dates

May 22, 1979 -- Staff met with EPA to discuss feasibility of conducting a PCB verification burn.

May 23, 1979 -- Staff met with applicant and his consultants to determine required data and information for permit application.

May 31, 1979 -- Final rule for the manufacture, processing, distribution, and use prohibitions of polychlorinated biphenyls (PCBs) published in the Federal Register (40 CFR Part 761)

June 29, 1979 -- Application received.

July 2, 1979 -- District Engineer performed a preliminary site investigation.

---

[1] The Condensed Chemical Dictionary, Van Nostrand Reinhold Company, 1977, page 696. "polychlorinated biphenyl (PCB). One of several aromatic compounds containing two benzene nuclei with two or more substituent chlorine atoms. They are highly toxic. Their chief use is in heatexchange and insulating fluids in closed systems. FDA has prohibited their use in plants manufacturing foods, animal feeds, and food-packaging materials, and has established strict tolerances on their presence in many food products (2.5 ppm).
NOTE: Because of their persistance and ecological damage from water pollution their manufacture has been discontinued in the U.S. (1976)."

July 24, 1979 -- Staff met with applicant and his consultants to discuss and clarify technical aspects of permit application.

August 2, 1979 -- Site evaluation performed by District Engineer and Permit Unit.

Sept. 10, 1979 -- Additional information necessary to complete the application received by the staff.

Site Location

Chevrolet Motor Division's Bay City Plant is located in Bay County and within the boundaries of Bay City. The facility is located adjacent to the Saginaw River and is surrounded by residential, industrial, and municipal establishments. The nearest residences and plant boundaries are as follows:

Compass Point	Distance from No. 3 Stack to Nearest Residence (meters)	Distance to Property Line from Stack No. 3 (meters)
N	750	310
NE	1,580	680
E	1,270	570
SE	620	520
S	450	430
SW	630	190
W	1,050	130
NW	730	230

History

The applicant had been burning PCB contaminated oil in all three existing boilers at this facility for approximately two years previous to July 14, 1977. On July 14, 1977, the Office of Toxic Materials Control, Environmental Services Division, Department of Natural Resources, denied the applicant's exemption application to burn PCB contaminated oils in the boilers since the applicant had not fully complied with the provisions of Act 60, Public Acts of 1976, and the administrative rules promulgated pursuant to the Act. Act 60 is the PCB Control Act that regulates the manufacture, sale, use, and disposal of PCB. On September 2, 1977, the Commission's staff notified the applicant that an approved air use permit application must be obtained from the Commission before any further burning of PCB contaminated oils would be authorized.

On February 17, 1978, final regulations for disposing of PCB were promulgated pursuant to Section 6(e)(1) of the United States Toxic Substance Control Act. These federal regulations require that the combustion criteria for disposing of PCB shall be either of the following:

1. A 2.0-second dwell time at 2,192°F in the furnace and 3% excess oxygen in the stack gas; or

2. A 1.5 second dwell time at 2,880°F and 2% excess oxygen in the stack gas.

In 1978 staff received and reviewed the applicant's application to burn PCB oil and recommended that the application be denied. The applicant withdrew the permit before final action was taken on the staff's recommendation.

The staff recommendation for denial action was based upon the following:

1. Combustion conditions did not meet the criteria as set forth by Section 6 of the U.S. Toxic Substances Control Act.

2. Stack testing methods were unacceptable.

3. Control of hydrogen chloride was not addressed.

On Thursday, May 31, 1979, final rules were promulgated which implement provisions of the Toxic Substances Control Act (Federal Register 40 CFR Part 761). This final rule amends the regulations first promulgated on February 17, 1978, and then amended on August 2, 1978 (43 FR 33918).

The final ruling has determined that mineral oil dielectric fluid with 50 to 500 parts per million PCB, which was subject to disposal in incinerators meeting the requirements of Annex I (2 second dwell time at 2,192°F and 3% excess oxygen, or 1.5 second dwell time at 2,880°F and 2% excess oxygen) could now be incinerated in high efficiency boilers. The applicant's existing boiler No. 3 meets all of the technical criteria for high efficiency boilers established by EPA in the final ruling for PCB manufacturing, processing, distributing, and use.

Existing Facility

It is proposed that the waste oil containing PCB will be incinerated in Chevrolet Motor Division's industrial steam boiler No. 3. Boiler No. 3 is a Wickes industrial oil-fired package boiler with a maximum steam generating capability of 60,000 pounds/hour (approximately 70 million Btu's per hour heat input). Boiler No. 3 operates in conjunction with two other oil-fired package boilers. The steam generated by these boilers is used for heating and process applications within the applicant's facilities. All three of the boilers are currently in compliance with all of the Michigan Air Pollution Control Commission's rules.

The existing boiler controls are automatic with manual overide. The control system shuts off the main fuel supply to the burners for the following conditions:

1. Loss of flame in either burner
2. Failure to maintain minimum air flow requirements
3. Failure to maintain minimum burner atomizing pressure
4. Low steam drum water level

Boiler controls fail safe (i.e., shut off oil supply to the boiler) in the event of compressed air or electrical service loss.

All other facilities for the transport and storage of the waste oil are in compliance with the appropriate divisions of the Department of Natural Resources.

Description of the Proposed Verification Burn

The applicant has requested a permit to perform a verification burn program for the incineration of waste oil containing polychlorinated biphenyls in the high efficiency boiler and to burn the waste oil on a continuing basis if the verification burn is successful.

The purpose of this verification burn is to accurately measure the destruction efficiency of this type of boiler for PCB. The test results are expected to reveal minimum destruction efficiencies of greater than 99.9 percent based on other stack test results and information contained in scientific literature.

The program is to be implemented by the GCA Technology Corporation of Bedford, Massachusetts, under the auspices of the Environmental Protection Agency's Office of Toxic Substances and with the cooperation of the Chevrolet Motor Division. The verification program will be carried out in strict accordance with the procedures set forth in GCA's test plan (Appendix A) and the special permit conditions (Appendix B). Staff has reviewed GCA's proposed test procedures and concurs with the sampling and analysis methodology as proposed.

The waste oil, which contains no more than 500 ppm PCB's, will be diluted 10:1 with No. 2 fuel oil resulting in a final oil mixture containing no more than 50 ppm of PCB's. This mixture will be fired at a rate of four gallons per minute. There will be three separate tests utilizing PCB contaminated oil, each test lasting approximately six hours. There will be approximately 4,300 gallons of the final oil mixture used for the three verification tests. The EPA allows oil with final PCB concentrations of 5 ppm to 50 ppm to be incinerated in this type of boiler. Mixtures with less than 5 ppm can be treated as noncontaminated oil. Contigent upon a successful verification burn, and approval by the Air Quality Division, waste oil containing about 50 ppm PCB's will be diluted 10:1 with No. 6 fuel oil and fired in the No. 3 boiler. This is expected to occur on a routine basis for as many years as the waste oils are contaminated with PCB. The verification burn must demonstrate greater than 99.9% destruction of PCB in order to be considered successful.

Required Modifications to the Existing Facilities

The existing facilities are capable of burning PCB containing waste oil at present; however, to provide the required safeguards, the control system will have to be modified to include additional instruments which will continuously monitor carbon monoxide, carbon dioxide, and excess oxygen levels. Since carbon monoxide, excess oxygen, carbon dioxide, and opacity levels in the boiler flue gas are indicative of combustion and destruction efficiency, these controls must have alarm and boiler shutdown capabilities to insure that the desired destruction efficiencey is maintained.

Boiler and Operational Requirements

The following conditions are boiler and operational requirements as set forth by the EPA and as required by the Air Quality Division:

EPA Requirement (Federal Register 40 CFR Part 761)	Air Quality Division Requirements
1. Boiler must be rated at a minimum of 50 MM BTU per hour.	1. Same
2. Oil containing PCB's must be less than 10% of the total fuel flow.	2. Same
3. Oil containing PCB must not be added to the boiler during start-up or shutdown.	3. Same
4. Before burning PCB contaminated oil, the owner/operator must conduct tests and determine that the combustion emissions contain at least 3% excess oxygen and no more than 50 parts per million of carbon monoxide.	4. Same
5. The company must notify the appropriate EPA Regional Administrator at least 30 days prior to the test and has supplied the combustion emissions data required in No. 4.	5. Same.
6. The combustion process is monitored continuously or, for boilers burning less than 30,000 gallons of mineral oil annually, at least once each hour that PCB contaminated oil is being burned.	6. The combustion process must be monitored continuously for all boilers.
7. The primary fuel and mineral oil feed rates are monitored at least every 15 minutes whenever PCB contaminated mineral oil is being burned.	7. Staff requires that the feed rates be monitored continuously and the control system to alarm on PCB contaminated waste oil flow exceeding 4 gallons per minute.

8. The carbon monoxide and excess oxygen levels are checked at least every 15 minutes whenever burning PCB contaminated mineral oil.	8. Staff requires CO, CO_2. excess O_2 and opacity levels to be monitored continuously. Boiler controls will have alarm and oil flow shutdown capabilities if any of these parameters exceed allowable limits. The CO, CO_2, O_2, and opacity monitors will have fail-safe capabilities.
9. Records are maintained that include monitoring data in Nos. 6 & 7 above and the quantities of PCB contaminated mineral oil burned each month.	9. Same.

Anaylsis of Impact

For the impact analysis, an absolute worse case failure mode was assumed. The worse case analysis includes the following criteria:

1. Poor atmospheric stability and, hence, plume dispersion
2. 0% destruction of PCB contaminated waste oil
3. Stack plume entrained in the aerodynamic wake of the building
4. All modeling assumes an 8 hour test time, whereas the test program indicates that PCBs will not be incinerated for more than 6 hours per day.

All four of the above conditions were used to determine the maximum expected ground level concentrations. The worst case failure mode assumes that there is no destruction efficiency, which is theoretically impossible because of the existing controls and because of the additional redundancy which will be integrated into the control system. The worst case conditions also assume a PCB concentration of 50 ppm for the test burn.

Under the verification burn conditions listed above, the worst case dispersion analysis predicts a maximum 8-hour exposure of 4.36 ug/m^3. Assuming an average respiratory volume of 30 m^3 for 24 hours, an individual could be exposed to a maximum of 43.6 ug for an 8-hour period under worst case conditions.

The current legal Threshold Limit Value (TLV) for PCB's as established by the American Conference of Govermental Industrial Hygienists (ACGIH) is 500 ug/m^3. The National Institute for Occupational Safety and Health (NIOSH) recommends a time-weighted average of 1.0 ug/m^3. This, however, is a recommendation and is not legally binding.

It can be seen that under worst case (no destruction) conditions the concentration will be about 4 1/2 times the NIOSH recommendation but will not exceed 1% of the ACGIH standard. If we assume the minimum expected destruction efficiency of 99.9%, the ground level concentration would be 0.00436 ug/m^3 or less than 0.0009% of the ACGIH standard and 0.5% of the NIOSH recommended time-weighted average.

Under worst case conditions, the maximum ground level concentrations will occur within the plant boundaries. PCB ground level concentrations were also calculated for the residential areas surrounding the plant. The maximum concentration of 0.28 ug/m^3 occurs at the closest plant boundary. This closest boundary area is approximately 130 meters west of the plant. Again, worst case meteorological conditions were assumed and 0% destruction efficiency was assumed. This worst case concentration indicates that the meximum ground level concentration is 28% of the NIOSH recommended value and 0.056% of the ACGIH standard.

As a means of comparing the amount of PCB's involved in this test, an analogy can be made with a specific amount of food ingested. The FDA (Food and Drug Administration) PCB limit for fish has recently been reduced to 2 ppm. At 2 ppm, if it is assumed that a person consumes 8 ounces of fish once, he would have then consumed 454 micrograms of PCB's, or nearly 3½ times the maximum amount an individual can be exposed to during this test burn using worst case assumptions.

The generation of hydrogen chloride is substantially less than the allowed TLV. The OSHA TLV for hydrogen chloride is 5 ppm and the amount being generated by this test is 0.8 ppm calculated as an instack concentration.

PCB Background Concentrations

A number of studies have indicated that PCB are very widespread throughout the environment. The mechanisms by which PCB's enter the environment are as follows:

1. Volatization of PCB's from paints and plasticizers as well as volatization from PCB oil spills.
2. Incomplete incineration of PCB containing materials.
3. Co-distillation from PCB contaminated waters.

In addition, it is possible to volatize PCB contaminated oil currently stored in landfills.

Levels of airborne PCB measured in the United States were found to range from 0.01 ug/m^3 to 0.5 ug/m^3. Assuming 99.9% minimum destruction, the maximum 8-hour ground level concentration would be 0.0044 ug/m^3 which is substantially less than the ambient levels measured in the United States.

Recommendation and Summary

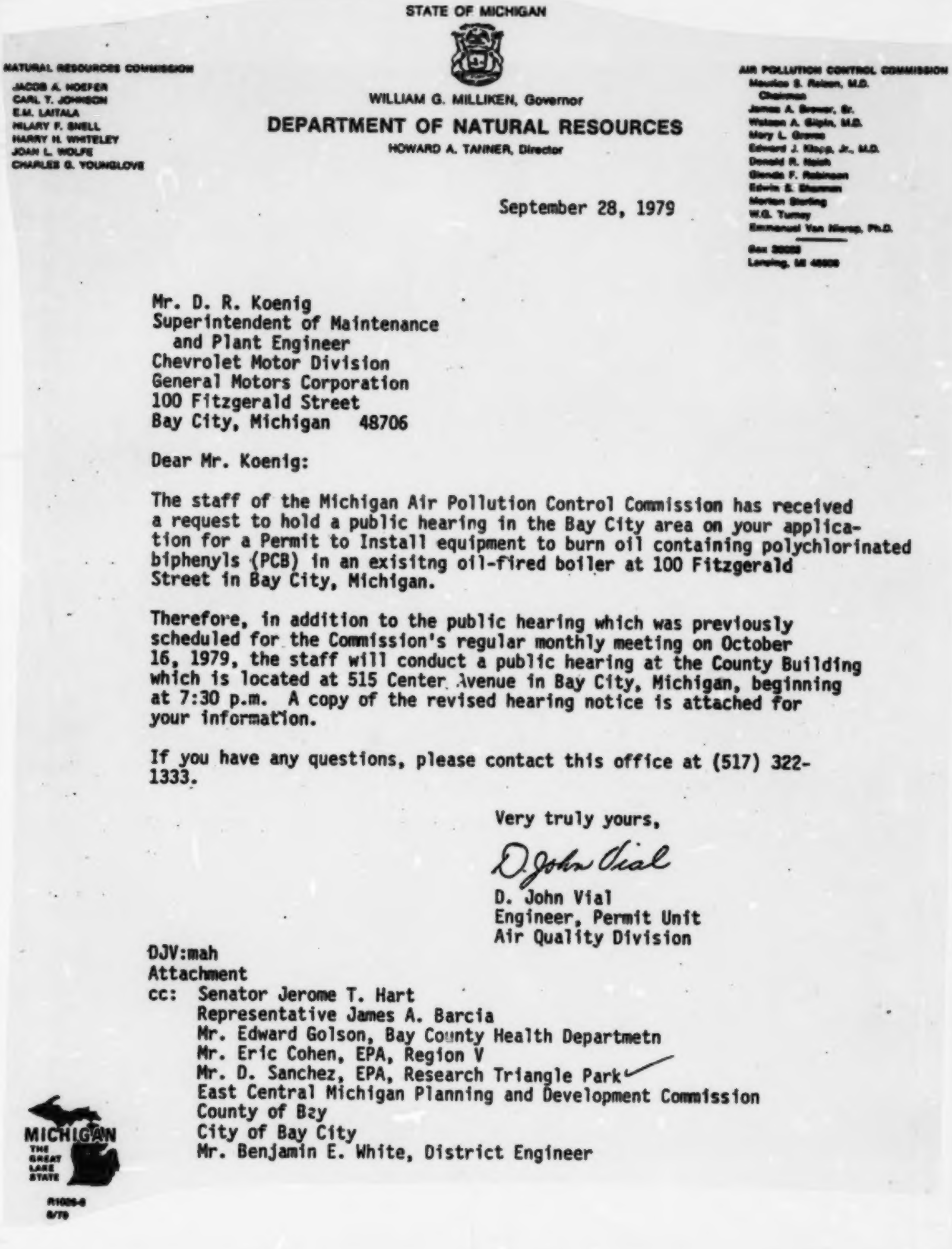
Staff recommends issuance of the permit to burn waste oil containing PCB's subject to the attached conditions. Staff bases its recommendation on the following criteria:

1. A demonstration, even under the worst case assumptions, that the environmental and health impacts are acceptable. Under the expected minimum destruction efficiency, the impacts are negligible.

2. Incineration in high efficiency boilers provides an environmentally acceptable and desirable means of disposing of PCB waste oil in lieu of disposal in landfills, storage, or other uncontrolled or unknown methods of disposal.

3. Destruction efficiencies far in excess of the required 99.9% are expected to occur. In addition, staff recognizes that, in light of the new criteria established by EPA for disposing of PCB contaminated oil, all of the reasons for the previous permit denial action have been resolved.

Submitted by: D. John Vial
September 14, 1979
DJV:mb
Attachments



STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

HOWARD A. TANNER, Director

NATURAL RESOURCES COMMISSION
JACOB A. HOEFER
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Donald R. Nash
Glenda F. Robinson
Edwin S. Shannon
Morton Sterling
W.G. Turney
Emmanuel Van Nierop, Ph.D.

Box 30028
Lansing, MI 48909

September 28, 1979

Mr. D. R. Koenig
Superintendent of Maintenance
and Plant Engineer
Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, Michigan 48706

Dear Mr. Koenig:

The staff of the Michigan Air Pollution Control Commission has received a request to hold a public hearing in the Bay City area on your application for a Permit to Install equipment to burn oil containing polychlorinated biphenyls (PCB) in an exisitng oil-fired boiler at 100 Fitzgerald Street in Bay City, Michigan.

Therefore, in addition to the public hearing which was previously scheduled for the Commission's regular monthly meeting on October 16, 1979, the staff will conduct a public hearing at the County Building which is located at 515 Center Avenue in Bay City, Michigan, beginning at 7:30 p.m. A copy of the revised hearing notice is attached for your information.

If you have any questions, please contact this office at (517) 322-1333.

Very truly yours,

D. John Vial

D. John Vial
Engineer, Permit Unit
Air Quality Division

DJV:mah
Attachment
cc: Senator Jerome T. Hart
Representative James A. Barcia
Mr. Edward Golson, Bay County Health Departmetn
Mr. Eric Cohen, EPA, Region V
Mr. D. Sanchez, EPA, Research Triangle Park
East Central Michigan Planning and Development Commission
County of Bay
City of Bay City
Mr. Benjamin E. White, District Engineer

MICHIGAN
THE GREAT LAKE STATE

R1026-8
6/79

NOTICE OF AIR POLLUTION COMMENT PERIOD AND PUBLIC HEARING

Notice is hereby given that the staff of the Michigan Air Pollution Control Commission will hold a public comment period until October 15, 1979, and public hearings on October 11, 1979, and October 16, 1979, to afford all interested citizens the opportunity to comment on the Commission staff's proposed conditional approval of GENERAL MOTORS CORPORATION, CHEVROLET MOTOR DIVISION'S, Permit to Install equipment to burn oil containing polychlorinated biphenyls (PCB) in an existing oil-fired boiler located at 100 Fitzgerald Street in Bay City, Michigan.

Copies of the Commission staff's analysis and proposed permit conditions are available for inspection at the following locations:

BAY CITY: Bay County Health Department, Washington Park Plaza, 301 Second Street.

SAGINAW: Air Quality Division, Department of Natural Resources, Washburn Building, Room 202, 1230 South Washington.

LANSING: Air Quality Division, Department of Natural Resources, State Government Secondary Complex, General Office Building, 3rd Floor, 7150 Harris Drive.

All persons are encouraged to present their written views on the proposed permit action. Written comments should be sent to the Department of Natural Resources, Air Quality Division, P.O. Box 30028, Lansing, Michigan, 48909, to the attention of the Chief of the Permit Unit. All statements received by October 15, 1979, will be entered into the permit record.

THE OCTOBER 11, 1979, PUBLIC HEARING WILL BE HELD AT 7:30 P.M. AT THE COUNTY BUILDING, 515 CENTER AVENUE, BAY CITY, MICHIGAN. The previously announced public hearing will be held during the regular monthly meeting of the Michigan Air Pollution Control Commission on Tuesday, October 16, 1979, starting at 9:00 a.m., at Holly's at the Inn, 3450 Hoyt Street, Muskegon Heights, Michigan.

MICHIGAN AIR POLLUTION CONTROL COMMISSION

Delbert Rector

Delbert Rector, Executive Secretary

9/28/79

BECAUSE OF ILLEGIBLE ORIGINAL, THIS PAGE HAS BEEN
RETYPED FOR CLARIFICATION

GCA Technology Division

Burlington Road
Bedford, Mass. 01730
(617) 275-5444

To: File 1-614-043

Date: 17 October 1979

From: S. G. Zelenski

Subject: Information Submitted As Part Of Public Hearing On PCB Burning Per GM Permit In Bay City, MI

Two forms of testimony were submitted at this hearing. The first consisted of written testimony submitted on instruction of the Project officer, Dave Sanchez, and a copy is enclosed as part of this memo. The second form consisted of oral testimony in response to a question. This consisted of the following statement: "Analysis will reveal other chlorinated compounds at a similar detection limit described for PCBs. Thank you."

A comment was made in response to Hal Synder's (OTS) question as to scheduling restraints on GCA. My response was, I believe not part of the recorded record, and referred Hal to my Project Officer, Dave Sanchez, for more information.

/jpm

Enc

cc: K. T. McGregor
    A. Engelman

Supplement to State of Michigan, Department of
Natural Resources Staff Activity Report and
Attachment E, dated October 16, 1979.

CLARIFICATION OF ENVIRONMENTAL ANALYSIS

Of major concern is the potential release of PCBs during the trial burn. Calculations were made to predict worst case air concentrations of PCBs as well as worst case deposition of PCBs downwind from the stack.

To calculate the highest expected air concentration of PCB, the condition during which the plume from the stack was displaced into the downwash of the building northeast of the stack was assumed. In this case, the emission rate rather than the meteorological conditions are assumed to be the prime determinant of exposure levels. A non-destruction time period of two minutes was considered the maximum possible with the safeguards and monitoring equipment installed on the boiler for the test. This would yield a peak concentration of 9.74 $\mu g/m^3$ air approximtely two minutes after a two minute no-destruction release of PCBs. This concentration would be highly localized in the region of the building downwash. An individual in the area for one hour would be exposed to a time-weighted average of 0.68 $\mu g/m^3$ air concentration of PCBs.

To calculate the deposition which might occur on populated areas near the stack, a meteorological model was hypothesized which would yield the highest concentrations at distances away from the stack. This model relied on a stability condition referred to as Stability E and which maintained the plume in a narrow, concentrated wedge radiating out from the stack. The air concentration of PCB at the nearest populated area in a northeasterly direction is calculated to be approximately 6.7×10^{-3} $\mu g/m^3$ after a two minute no-destruction release, averaged over one hour, and 2.0×10^{-4} $\mu g/m^3$, assuming 99.9% destruction for the 10 hour duration of the trial burn. The deposition is calculated to be approximately 68 $\mu g/m^2$ at the same distance for the entire 24 hour trial burn.

These air concentrations should be compared to the documentation available for PCB exposures. The first of these is the regulation in effect from OSHA, and is 1000 $\mu g/m^3$ for Aroclor 1242, and 500 $\mu g/m^3$ for Aroclor 1254. The second is the recommendation from NIOSH approximately two years ago suggesting a maximum exposure of 1 $\mu g/m^3$. The third is the ACCIH TLV of 500 $\mu g/m^3$. These all are related to occupational exposure not to exceed 40 hours/week, with a maximum of 10 hours/day.

Prepared by
GCA/Technology Division
Bedford, MA 01730

Calculated Downwind Air Concentrations Of PCBs After A 2 Minute No-Destruction Release Averaged Over 1 Hour And After 10 Hours Of Testing At 99.9% Destruction.

Downwind Distance (m)	PCB Concentration No Destruction 2 Minute Release µg/m^3	PCB Concentration 99.9% Destruction µg/m^3
250	1×10^{-2}	3.2×10^{-4}
500	9.3×10^{-3}	2.8×10^{-4}
750	8×10^{-3}	2.4×10^{-4}
1,000	6.7×10^{-3}	2.0×10^{-4}
5,000	2×10^{-3}	6.1×10^{-5}
10,000	8.7×10^{-4}	2.6×10^{-5}
50,000	1.3×10^{-4}	3.7×10^{-6}
100,000	6.0×10^{-5}	1.8×10^{-6}

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Research Triangle Park, North Carolina 27711

October 16, 1979

Diane Carlson
Department of Natural Resources
P. O. Box 30028
Lansing, MI 48909

Dear Diane;

I hope the timing of this transmittal doesn't cause too much of an inconvenience.

As you know, the availability of the information and findings we plan to report on in our proposed paper are dependent upon the continued cooperation of facilities applying for PCB test burns as well as public acceptance. At the present time, our planned study at the Bay City GM plant has encountered some delay; we should know by November 20 whether we will be able to conduct a verification burn at that site. Our Sanford, Florida verification burn test site is in a preliminary stage.

I will keep you informed as to when we obtain necessary State approvals to conduct our tests. Please note that the proposed paper will be co-authored by Dr. Steven Zelenski with GCA, Inc.

Sincerely,

David C. Sanchez
Environmental Engineer
Chemical Processes Branch
Industrial Processes Division

DCS/bld
Enclosure

TECHNICAL PAPER PRESENTATION PROPOSAL FORM

73rd Annual Meeting
Air Pollution Control Association

Place Bonaventure, Montreal, Quebec
June 22-27, 1980

To the prospective author:

Complete this proposal form in triplicate (original and two copies) and return it not later than October 15, 1979 in accordance with instructions shown directly below. Please indicate clearly whether or not your proposal was invited.

Dr. Louis-Philippe Roy
Div. Head, Phys. Ecology
Hydro Quebec
855 St. Catherine East (17th Floor)
Montreal, Quebec H2L 4M4, Canada

☐ Proposed paper was invited by Diane Carlson
who is X Session Arranger for Session Topic Hazardous Waste Incineration
and/or ___ Chairman of responsible APCA Committee (TS 2.4 - Waste)
(Proposal form should be sent directly to this primary contact)

OR

☐ Proposed paper was not invited but is a response to the Invitation for Submission of Papers and is submitted under subject area (code) ________
(topic) ________________________________
(In this event, proposal form should be sent directly to Dr. Roy)

I agree to provide a complete manuscript by March 15th for review and acceptance.

In accordance with APCA policy, I certify that, to the best of my knowledge, this paper will represent:

☒ The first publication of original material
☒ Will include experimental data
☐ ________________ other
☐ Informative review only
☐ An original compilation of information from a number of sources as specifically noted by footnotes and/or bibliography

In submitting a finished manuscript for publication I attest that the sole author(s) will be the individual(s) whose name(s) will appear on the title page, with the possible exception of editorial or research assistance.

I am offering this paper to the APCA with full knowledge of the deadlines and other requirements.

Signed David C. Sánchez
Title Environmental Engineer
APCA Affiliation ____ Member ____
Non-Member X
Address IERL/RTP, (MD-62)
US EPA
Research Triangle Park, NC 27711

Date 10/15/79

1. **TITLE OF PAPER** PCB Disposal - Verification Test Burn Results

2. **AUTHORS**
Underline name of speaker

3. **Business Mailing Address Including Zip Code and Telephone Number**

4. **APCA Member**
☐ Yes
☐ No

Tech Committee Member
☐ Yes
☐ No

5. **Professional Discipline of Primary Author**
☐ Engineer
☐ Chemist
☐ Physicist
☐ Biologist
☐ Meteorologist
☐ Other

Steven G. Zelenski
GCA Corporation
Burlington Rd.
Bedford, MA 01730

David C. Sanchez
Industrial Environmental Research Laboratory
US EPA
Research Triangle Park, NC 27711

6. **Work done at** Bay City, Michigan and Sanford, Florida

7. **Plan APCA** X **nonAPCA** ___ **publication. Where?** ___ **No** ___ **Uncertain**

8. **Brief Des.. 200 words or equivalent.**
Use ruled area below.

EPA promulgated regulations 40 CFR, Part 761 on May 31, 1979 (44 FR 31514) to implement provisions of the Toxic Substances Control Act which prohibits the manufacture, processing, distribution in commerce and use of PCB's. Subpart B of those regulations provides minimum requirements for the disposal of PCB's via thermal destruction.

IERL/RTP, EPA has contracted with the GCA Corporation of Bedford, Ma. to prepare and conduct thermal destruction verification test at two facilities. The verification tests will evaluate through the analysis of quantitative measurements for various PCB's, potential intermediates to the thermal destruction and boiler performance parameters, e.g., CO, O_2, and particulates, the PCB destruction characteristics of the two facilities.

Measurements for the presence of PCB's will be made in the fuel and stack emissions during the test. Multiple runs will be made as part of the test. Stack gas emissions will be sampled using a standard EPA Method 5 particulate train and PCB sampling train. Organic emissions in the flue gas will be collected using an XAD-2 adsorbent column

Analysis of the samples, after the necessary extraction and concentration, will be accomplished using gas chromatography coupled with either electron capture detection or mass spectrometry.

Quality assurence and quality control in the analysis will be incorporated through the emission sampling of blank runs (fuel without PCB's) as well as the PCB fueled burns and the spiking of emissions and samples to measure sampling efficiencies and analytical capabilities.

The boiler thermal destruction verification tests are expected to confirm the ability of boilers greater than 50 million BTU/hr heat input to provide for greater than 99.9% destruction of PCB's.

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

OCT 22 1979

Mr. D.R. Koenig
Superintendent of Maintenance
and Plant Engineer
Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, Michigan 48706

Dear Mr. Koenig:

This letter is to acknowledge the receipt of your notification, dated September 18, 1979, to the U.S. Environmental Protection Agency (USEPA) of your intention to burn mineral oil containing less than 500 ppm of polychlorinated biphenyls (PCBs) in your high efficiency boiler.

The notification has been reviewed by one of my staff and found to be adequate in addressing the technical requirements as described in Section 761.10(a)(2)(iii), of PCBs Manufacturing, Processing Distribution in Commerce, and Use Prohibitions Final Rule which was published by USEPA on May 31, 1979, in the Federal Register 40 CFR Part 761.

You have our consent to proceed with the burning of the PCB contaminated mineral oil in the high efficiency boiler, Boiler No. 3, anytime after October 18, 1979. It should be noted, however, that our consent does not relieve you from complying with any other applicable Federal, State, and local regulations and ordinances for the initiation and continuation of such burn.

It is the responsibility of you and your company, Chevrolet Motor Division, General Motors Corporation, to ascertain that all applicable provisions of Sections 6(e)(1) and 6(e)(2) of the Toxic Substances Control Act (Public Law No. 94-469), and the Final PCB Rule (40 CFR Part 761) are fully adhered to in exercising the burn. The pertinent provisions of the 40 CFR Part 761 include, but are not limited to:

Subpart A - General
Subpart B - Disposal of PCBs and PCB Items
Subpart C - Marking of PCBs and PCB Items

Subpart E - List of Annexes

Annex III - Storage for Disposal
Annex IV - Decontamination
Annex V - Marking
Annex VI - Records and Monitoring

USEPA reserves the right to inspect the high efficiency boiler and other auxillary facilities to be used for the disposal of the PCB contaminated mineral oil, including the records on the disposition thereof.

Enclosed are copies of the Final PCB Rule and the Toxic Substances Control Act of 1976. Should you have any questions regarding this letter, please contact Jay Goldstein or Y.J. Kim of our Waste Management Branch at (312) 353-2197.

Sincerely yours,

David Kee, Director
Air and Hazardous Materials Division

Enclosure

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

HOWARD A. TANNER, Director

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909

NATURAL RESOURCES COMMISSION
JACOB A. HOEFER
CARL T. JOHNSON
E.M. LAITALA
HILARY F. SNELL
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

October 25, 2979

Mr. D. R. Koenig
Chevrolet Motor Division, GMC
100 Fitgerald Street
Bay City, MI 48706

Dear Mr. Koenig:

In regards to your application for the test burn of waste oil containing PCB, I have compiled a list of questions raised at both the October 11 hearing in Bay City, Michigan and the regularly scheduled meeting of the Michigan Air Pollution Control Commission held in Muskegon, Michigan on October 16, 1979. After each question listed, I have indicated who we think should be providing the response.

Obviously we could not list every individual question brought up at the hearing and at the Commission meeting. Therefore, we have posed questions which are representative of the general nature of the questions asked at both the Commission meeting and the public hearing. Since we had determined at the Commission meeting that this permit application would just be for a test burn only, all the questions listed are applicable to the test burn only. In the event you are allowed to burn PCB contaminated oil on a continuous basis, I anticipate that there would be additional questions that would have to be answered before issuance of that permit.

Because we have a relatively short time frame to answer all these questions, I request that you provide your written response by November 6, 1979. If you have any questions, please feel free to contact me at (517) 322-1333.

Yours very truly,

D John Vial

D. John Vial, Engineer
Permit Unit
Air Quality Division

DJV:mb
Enclosure
cc: B. White
Anthony Fisher
Dave Sanchez

MICHIGAN
THE GREAT LAKE STATE
R1026 1/79

QUESTIONS	RESPONSE
I. GENERAL	
1. Aren't there more favorable and less populated areas where this program could be implemented with less risk to public health?	DNR
2. Can't this program be delayed until some type of state regulated chemical waste incinerator is built? What effect if any, will Act 64, P.A. of 1979 (Hazardous Waste Management Act) have on this application?	DNR
3. Wouldn't it be more advantageous to incinerate PCB in an incinerator instead of a high efficiency boiler?	DNR
4. What is an acceptable limit for PCB destruction?	DNR
5. Why was the incineration criteria for PCB disposal changed?	DNR
6. Was this permit application evaluated on the basis of dwell times and temperature published in previous regulations?	DNR
7. Has the State of Michigan ever issued a permit for the incineration of PCB?	DNR
8. Can the waste oil be recycled or reused in lieu of incinerating it?	GM
9. Will Chevrolet Bay City be permited to incinerate waste oils from other General Motors facilities or other outside sources?	DNR
10. How long will it take to dispose of all the existing waste oil stored on site?	GM
11. How much waste oil is being generated and what operating schedule will be used to dispose of the waste oil?	GM
12. Is this a permit for a test burn only?	DNR
13. Will the verification burn be performed with the type of fuel oil that will be used under normal operating circumstances?	GM
14. What is the exact chemical composition and origination of the PCB that is to be mixed with the fuel oil during the test burn?	GM

15. Did the boiler operators have any input into this application? DNR

16. When would test burn take place, assuming approval of the application by the Michigan Air Pollution Control Commission? GM

17. Will a control device be required for the generation of hydrogen chloride? DNR

II. HEALTH EFFECTS

1. How much PCB was burned previously without the boiler operators knowledge, and what ramifications will this have on this test, as far as worker exposure? GM

2. What action is Chevrolet taking to analyze what amount of PCB the boiler operators were exposed to during past burning of PCB contaminated oil? GM

3. What steps will be taken to prevent further worker exposure to PCB during the verification burn and during the cleaning of the boiler? GM

4. What actions are being taken to measure the health impact that this test will have on boiler house operators? GM

5. Taking into account the bio-accumulative effects of PCB, will the level of PCB that could possibly be emitted to the air in and around the Bay City Chevrolet plant be harmful or cause cancer? DNR

6. What are the long term effects of exposure to PCB? DNR

7. Can you guarantee that the amount of PCB being emitted from this stack will not cause or contribute to cancer in humans? DNR

8. What assurances are there that currently enforceable PCB exposure limitations will not become obsolete, or will not become more stringent in the future? DNR

9. Do the currently enforceable OSHA exposure limitations take into account the carcinogineric or mutageneric effects of the contaminant? DNR

III. BOILER CONDITIONS

1. Has the dwell time reading submitted by General Motors been verified by the Department of Natural Resources? DNR

2. When will GM substantiate test measurements with operating personnel and DNR representatives as witnesses? GM

3. How can a continued high degree destruction efficiency be maintained when burning PCB contaminated waste oil? DNR

4. What redundant control features will be used on the furnace when burning PCB? DNR

5. Will controls automatically shut off the flow of contaminated fuel oil to the furnace in the event that a furnace upset condition is encountered? DNR

6. How will the level of PCB be measured in the stack? Can we instantly detect high levels of PCB in the furnace flue gases? DNR

7. Will flame temperature be monitored continuously while burning PCB contaminated waste oil? GM

8. How can it be guaranteed that waste oil with PCB concentrations exceeding 500 ppm will not be generated and incinerated after permit issuance? DNR

IV. SAMPLING AND ANALYSIS

1. Have we analyzed this plant's critical materials list? DNR

2. Will dibenzofurans be generated during the combustion or partial combustion of PCB? DNR

3. Will dioxin be generated during the combustion of PCB? DNR

4. Will other toxic materials, created by the incineration of PCB or other contaminants in the waste oil, be generated? DNR

V. AMBIENT AIR MONITORING

1. What will Chevrolet do to monitor the ambient levels of PCB in the atmosphere before, during, and after the test burn? GM

2. Was state of the art modeling procedures and meteorological data was used to calculate ambient impact? DNR

3. Was the modeling based on the same boiler operating load as that boiler load used for the verification burn? DNR

4. Was the applicant's modeling study independently verified by the Air Pollution Control Commission's staff? DNR

5. What are the existing ambient levels of PCB in Bay City? DNR

6. All of the modeling performed assumed meteorological parameters for the originally anticipated test burn schedule in mid-August. Since this test, if granted a permit, would be performed in the fall or winter, should there be a re-evaluation in the study relative to changes in meteorological conditions? DNR

VI. BOILER MAINTENANCE

1. How will Chevrolet determine if there is PCB accumulation in the boiler? If this requires washing, what will be done with the washing medium while the test are being done? GM

2. What will be done with the residue that is filtered out of the waste oil? GM

10-25-79

STATE OF MICHIGAN

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Morton Sterling
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Box 30028
Lansing, MI 48909

November 8, 1979

DEAR CONCERNED CITIZEN:

Subject: Chevrolet Motor Division, Bay City, Permit to Install No. 484-79

The Michigan Air Pollution Control Commission will meet on November 20, 1979, in the Executive Training Room, Long's Convention Center, which is located at 6810 South Cedar Street in Lansing, Michigan. Enclosed is a copy of that meeting agenda.

At 1:00 p.m. the Commission has scheduled consideration of an application from Chevrolet Motor Division, General Motors Corporation, for a permit to install equipment to conduct a test burn of oil containing polychlorinated biphenyls (PCB). The Commission's staff has completed their review of the public hearings held in Bay City on October 11, 1979, and in Muskegon on October 16, 1979. Enclosed is a copy of the staff's summary of those public hearings and the responses to the concerns expressed.

We would like to take this opportunity to thank everyone who expressed an interest in this issue for letting the Commission know what their views and concerns were. The Commission welcomes public input at any time. If you have any further questions, please contact Mr. Gerald Avery or Mr. John Vial in this office at (517) 322-1333.

Very truly yours,

AIR POLLUTON CONTROL COMMISSION

Del Rector

Delbert Rector
Executive Secretary

DR:mah
Enclosures (2)

cc: Senator Jerome T. Hart
Representative James A. Barcia

MICHIGAN
THE GREAT LAKE STATE

R1026-6

PROPOSED SUPPLEMENT TO PERMIT No. 484-79

Chevrolet Motor Division, GMC
Bay City, Michigan

DRAFT

Drafted November 8, 1979

GENERAL CONDITIONS

1. Applicant shall demonstrate compliance with all Commission rules and with all specific conditions of this permit prior to issuance of the Permit to Operate.

2. The restrictions and conditions of this Permit to Install shall apply to any person or legal entity which now or shall hereafter own or operate the facilities for which this Permit to Install is issued. The Applicant shall immediately notify the Commission of such change in ownership or principal operator status of this facility.

3. Act No. 53 - Applicant shall notify any public utility of any excavation, tunneling and discharging of explosives or demolition of buildings which may affect said utility's facilities in accordance with Act No. 53 of the Public Acts of 1974, being Sections 460.701 to 460.718 of the Michigan Compiled Laws and comply with each of the requirements of that Act.

4. Rule 29(3b) - Operation of this facility shall not interfere with the attainment or maintenance of the air quality standard for any air contaminant.

5. Rule 29(3d) - Operation of this facility shall not result in substantial deterioration of air quality.

6. Rule 46 - Operation of this facility shall not result in the emission of an air contaminant which causes or will cause detriment to the safety, health, welfare or comfort of any person or which causes or will cause damage to property or business.

7. Rule 21 - Applicant shall not reconstruct, alter, modify, expand or relocate this facility unless plans, specifications and an application for a Permit to Install are submitted to and approved by the Commission.

8. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

SPECIAL CONDITIONS

9. The Applicant shall not burn any PCB contaminated waste oil in this boiler except as outlined in the submitted test procedure. Any variation from this test procedure shall not be allowed without written approval from the Air Quality Division.

10. The Applicant shall provide written notification to the Air Quality Division as to the exact starting date and duration of the test, at least one week prior to the initiation of the test.

PROPOSED SUPPLEMENT DRAFTED November 8, 1979

DRAFT

11. PCB contaminated oil shall not be fired in the boiler unless all of the following conditions are satisfied.

    a. The Applicant has verified by measurement of carbon monoxide, that the boiler combustion efficiency is at least 99.9%.

    b. The boiler is operating under stable conditions. Steam pressure, steam flow, flue gas temperature, combustion air temperature, fuel oil flow rate, and air flow rate shall be used as indicators of the boiler stability.

    c. The boiler is operating at a fuel oil flow rate of 4 gallons per minute.

    d. The fuel oil contains no more than 10%, by volume, PCB contaminated reclaim waste oil.

12. The Applicant shall analyze the PCB contaminated oil mixture for all of the following:

    a. polychlorinated biphenyls (PCB)
    b. dibenzofurans
    c. chlorphenols
    d. triaryl phospate esters
    e. lead
    f. zinc
    g. nickel
    h. mercury
    i. copper
    j. cobalt
    k. hypochlorite
    l. selenium
    m. chromium
    n. arsenic
    o. cyanides
    p. phenols
    q. aniline
    r. nitrogen
    s. sulfur
    t. chlorine
    u. carbon
    v. hydrogen
    w. ash.
    x. water
    y. sediment
    z. calorific value
    aa. carbon residue
    bb. flash point

DRAFT

13. Input of PCB contaminated oil to the boiler shall cease immediately if any of the following conditions occur at any time while burning PCB contaminated oil:

    a. The feed rate of the PCB oil mixture does not equal 4 gallons per minute.

    b. The carbon monoxide level in the flue gas exceeds 50 parts per million.

    c. The excess oxygen level in the flue gas falls below 3%.

    d. Flue gas opacity exceeds 5%.

    e. Windbox differential pressure falls below 0.5" W.C.

    f. Atomizing steam pressure falls below 15.0 PSIG.

    g. Fuel oil temperature falls below 155^{O}F.

    h. Steam drum water water level falls 5" below the center line of the steam drum.

    i. Oil temperature exceeds 250^{O}F.

14. The Applicant shall verify the emission rates of PCB, dibenzofurans, total bydrocarbons, and hydrogen chloride in accordance with the GCA test procedures.

15. The Applicant shall verify the emission rates of dioxins and polycyclic aromatic hydrocarbons. Prior to the test, the testing procedure for these compounds must be submitted to and approved by the Air Quality Division.

16. The Applicant shall test the inplant air, the ambient air and the inside of the boiler for PCBs in accordance with the submitted procedures.

17. All instrumentation and control used for combustion control and in stack monitoring shall be self calibrating or shall be calibrated before initiation of this test. The instruments and controls subject to this condition shall include, but may not be limited to the following:

    a. opacity monitor
    b. fuel flow measuring devices
    c. excess oxygen monitors
    d. carbon monoxide monitor
    e. flame scanner

PROPOSED SUPPLEMENT DRAFTED November 8, 1979

DRAFT

18. The exhaust gases shall be discharged unobstructed vertically upwards to the atmosphere from a stack with a maximum diameter of 3.5 feet and at an exit point not less than 50 feet above ground level.

DJV:mb

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY DIVISION

Summary of Comments Received During the October 11 and 16, 1979, Public Hearings on Chevrolet Motor Division, Bay City, Permit to Install No. 484-79

I. GENERAL

1. Are there more favorable and less populated areas where this program could be implemented with less risk to public health?

   Response: Yes, since any area with less population could be considered to have less risk if transportation issues are not considered. However, the Michigan Air Pollution Control Commission does not have the authority to deny a permit because a better site exists elsewhere.

2. Can this program be delayed until some type of state-owned or regulated hazardous waste incinerator is built? What effect, if any, will Act 64, Public Acts of 1979 (Hazardous Waste Management Act) have on this application?

   Response: Technically, this program could be delayed as long as there are facilities available for safely storing or disposing of this waste. A well managed hazardous waste incineration facility would be a viable alternative to this program.

   It is difficult to define exactly what impact the rules pursuant to Act 64, Public Acts of 1979 (Hazardous Waste Management Act) will have, because these rules are only in the proposal stage. However, Act 64 does not become effective until 1980.

3. Would it be more advantageous to incinerate PCB in an incinerator instead of a high efficiency boiler?

   Response: Incinerating PCB in a high temperature incinerator in lieu of a high efficiency boiler would provide a larger margin of safety because higher flame temperatures can be achieved in the incinerator. Highly concentrated PCB waste (500 parts per million and above) will still be required to be disposed of in high temperature incinerators that can achieve 99.9999 percent destruction efficiency. However, the rules recently promulgated by the Environmental Protection Agency allow lower concentrated PCB waste oil (up to 500 parts per million) to be incinerated in high efficiency boilers and should provide an acceptable margin of safety since these boilers are expected to achieve destruction efficiencies of 99.9 percent to 99.999 percent.

4. What is an acceptable limit for PCB destruction?

   Response: This test burn program will be judged to be acceptable if a minimum destruction efficiency of 99.9 percent is achieved.

5. Why was the EPA incineration criteria for PCB disposal changed?

   Response: The incineration criteria for PCB disposal has not changed for highly concentrated PCB waste oil (500 parts per million and above). Such waste is still required to be disposed of by high temperature incineration (2,197 degrees Fahrenheit at 2 seconds dwell time or 2,880 degrees Fahrenheit at 1.5 seconds dwell time). The new regulations do allow lower concentrated PCB waste oil (50 to 500 parts per million), which was not required to be incinerated under old regulations, to now be disposed of in high temperature boilers after a 9 to 1 dilution with regular fuel oil. The majority of this lower concentrated waste was in the past disposed of in landfills or simply held in storage. These new regulations are, therefore, in addition to the past requirements.

6. Was this permit application evaluated on the basis of the dwell times and temperatures published in previous regulations?

   Response: No. The PCB concentration is low enough that these regulations do not apply. The evaluation was performed by comparing this furnace's combustion parameters with the temperature, dwell time, and PCB destruction efficiencies measured and documented in other test situations.

7. Has the State of Michigan ever issued a permit for the incineration of PCB?

   Response: No.

8. Can the waste oil be recycled or reused in lieu of incineration?

   Response: Reclaim oil containing less than 50 parts per million PCB may legally be recycled. Approximately 18,000 gallons of the 38,000 gallons being stored at Chevrolet-Bay City meet this criteria. However, Chevrolet plans to burn this oil if allowed. Another 10,000 gallons of the 38,000 contain less than 50 parts per million PCB but are sludges and, thus, cannot be recycled nor can they be burned in General Motor's existing boilers. This material will require additional processing or disposal in a PCB approved incinerator or landfill. The remaining 10,000 gallons contain greater than 50 parts per million, but less than 500 parts per million PCB, and may not legally be recycled. Additionally, technology does not exist to physically remove the PCB from the waste oil.

9. Will Chevrolet-Bay City be permitted to incinerate waste oils from other General Motors facilities or other outside sources?

   Response: No.

10. How long will it take to dispose of all the existing waste oil stored on site?

    Response: Approximately 28,000 gallons of the 38,000 gallons being stored are burnable in General Motors' existing No. 3 boiler.

Approximately 1,200 hours of burning time will be required to dispose of the 28,000 gallons at a firing rate of 4 gallons per minute when mixed to comprise not more than 10 percent by volume of the fuel oil fed to the boiler.

11. How much waste oil is being generated and what operating schedule will be used to dispose of the waste oil?

    Response: Reclaim oil is being generated at a rate of 1,000 to 2,000 gallons per month. Approximately 80 hours of burning time will be required to dispose of 2,000 gallons at a firing rate of 4 gallons per minute when mixed to comprise not more than 10 percent by volume of the fuel oil fed to the boiler. Reclaim oil will be mixed with fuel oil to produce batches of approximately 10,000 gallons. Each batch will be burned on a continuous 24-hour per day basis.

12. Is this a permit for a test (verification) burn only?

    Response: Yes

13. Will the test burn be performed with the type of fuel oil that will be used under normal operating circumstances?

    Response: The permit application has been amended so that the test burn will now be conducted using No. 6 fuel oil, which is the fuel oil used under normal operating conditions.

14. What is the exact chemical composition and origination of the PCB that is to be mixed with the fuel oil during the test burn?

    Response: For the test burn only, the United States Environmental Protection Agency has requested that the reclaim oil be spiked to raise its concentration to approxiamtely 500 parts per million PCB. The spiking fluid is 98% PCB and originates from an electric capacitor formerly used at this location. The PCB present in the capacitor fluid is Aroclor 1242 which is the same Aroclor present in the reclaim oil. The spiked reclaim oil will be mixed with No. 6 fuel oil to comprise not more than 10 pecent by volume of the fuel oil fed to the boiler. The PCB concentration at the burner will be approximately 50 parts per million during the verification burn.

15. Did the boiler operators have any input into this application?

    Response: Yes. All parties interested in this permit application had an opportunity to provide input both at the public hearing held at Bay City on October 11, 1979, and at the regularly scheduled meeting of the Michigan Air Pollution Control Commission on October 16, 1979. In fact, this report is in response to comments raised by the boiler operators and others.

16. When would the test burn take place, assuming approval of the application by the Michigan Air Pollution Control Commission?

Response: Weather permitting, the verification burn would be conducted during the week of December 3, 1979. This date is contingent upon the Michigan Air Pollution Control Commission's approval on November 20, 1979.

17. Will a control device be required for the generation of hydrogen chloride?

Response: No. The hydrogen chloride concentration is low enough that control is not necessary.

II. HEALTH EFFECTS

1. How much PCB was burned previously without the boiler operators' knowledge, and what ramifications will this have on this test as far as worker exposure?

Response: Reclaim oil containing residual PCB's has been burned in boilers at this location as shown below:

Year	Reclaim Oil Burned	Estimated PCB Concentration
1974	27,399 gallons	100 ppm - 500 ppm
1975	17,163 gallons	100 ppm - 500 ppm
1976	45,075 gallons	100 ppm - 500 ppm
1977	12,556 gallons	100 ppm - 500 ppm
	102,193 gallons	

The exact concentration of PCB's present in the oil that was burned is not known. Analysis of available information would indicate that the concentrations were between 100 parts per million and 500 parts per million. The ramifications are addressed in the next question.

2. What action is Chevrolet taking to analyze the amount of PCB the boiler operators were exposed to during past burning of PCB contaminated oil?

Response: Chevrolet-Bay City has provided physical examinations, including blood analysis, for all powerhouse boiler operators who worked in the powerhouse during previous burning of PCB contaminated oil. PCB levels in the operators will be addressed through blood serum analysis. The Michigan Department of Public Health Laboratory in Lansing and the Raltech Laboratory in Madison, Wisconsin, will share split samples of blood serum from each operator and analyze independently for PCB levels. Identical examination and analysis has also been conducted on a control group from within the Chevrolet plant population. The control group includes both infrequent and frequent consumers of fish taken from the Saginaw Bay. Comparison of the blood serum levels of the two groups will indicate those candidates, if any, who should undergo further examination through body fat biopsies.

3. What steps will be taken to prevent further worker exposure to PCB during the verification burn and during the cleaning of the boiler?

   Response: Reclaim oil will be delivered to the boiler through closed system transfer piping and presents no exposure potential to the operators. However, the General Motors Industrial Hygiene Department will take air samples in the powerhouse during the verification burn. After completion of the verification burn, the boiler will be shut down and inspected. Samples will be taken of residue on the waterwalls and heat wheel. The boiler will then be closed until the residue is analyzed for PCB content. Based on the results of the analysis, appropriate protective clothing and respirators will be provided to the operators who will clean the boiler.

4. What actions are being taken to measure the health impact that this test will have on boiler house operators?

   Response: General Motors Industrial Hygiene Department will collect air samples in the powerhouse during the verification burn. GCA Corporation, the United States Environmental Protection Agency's contractor, will collect continuous exhaust stream samples during the verification burn. Samples will be taken of residue on the waterwalls and heat wheel before and after the verification burn. The results from the analyses of these tests will quantify total operator PCB exposure.

5. Taking into account the bio-accumulative effects of PCB, will the level of PCB that could possibly be emitted to the air in and around the Bay City-Chevrolet plant be harmful or cause cancer?

   Response: PCB's are generally recognized as proven animal carcinogens. However, there is no good data as yet to indicate that it is a human carcinogen. Dr. Ray Harbison of Toxic Substances Control Laboratory at Vanderbilt University, Nashville, Tennessee, is quoted in the October 26, 1979, issue of Environmental Reporter as saying: "PCB's are totally immobile and not carcinogenic to humans." However, we learned in talking to Dr. Harbison, that what he actually said was that there was no evidence that PCB's are carcinogenic in either humans or animals. He felt that the available evidence that suggests PCB's to be carcinogenic is weaker than the case presented for saccharin.

   Renate Kimbrough, M.D., of the Center for Disease Control in Atlanta, who has done research on PCB toxicology, indicated that it is her professional judgment that an ambient level of 0.3 micrograms per cubic meter would be safe. Based on calculations, incinerating 50 parts per million PCB with 99.9 percent destruction at the Bay City-Chevrolet plant would have a maximum ground level concentration of 0.004 micrograms per cubic meter. This concentration will occur on Chevrolet's plant site. So, with 99.9 percent destruction, the maximum ground level concentration would be nearly 100 times lower than the level that Dr. Kimbrough judged to be a safe ambient level. Furthermore, the maximum concentration that will occur off of Chevrolet's plant property (0.28 micrograms per cubic meter) will be less than this level that is considered to be safe even if there was no destruction.

6. What are the long-term effects of exposure to PCB?

Response: Long-term effects of PCB to animals are generally considered to include cancer and reproductive failure. In humans, the more serious effects are that it can cause chloracne and possibly liver ailments. Recently, Dr. Ralph D. Dougherty of the Department of Chemistry, Florida State University, suggested that PCB's may be related to observed reduced sperm counts in humans.

7. Can you guarantee that the amount of PCB being emitted from this stack will not cause or contribute to cancer in humans?

Response: No. Again, however, based on Dr. Kimbrough's professional judgment and the fact that our calculated maximum ground level concentration is substantially below her suggested safe ambient levels, the risk is minimal.

Additionally, the staff's calculations show that the amount of PCB that will be emitted from the storage tanks is very insignificant due to the very low vapor pressure of PCB.

8. What assurances are there that currently enforceable PCB exposure limitations will not become obsolete or will not become more stringent in the future?

Response: No one can give any kind of assurance that it will not be lowered. Already the National Institute for Occupational Safety and Health (NIOSH) recommended level is 1 micrograms per cubic meter compared to the TLV of 500 micrograms per cubic meter for Aroclor 1254. There is no enforceable ambient PCB limit and it is not known what it will be if and when one is established.

9. Do the currently enforceable Occupational Safety and Health Administration (OSHA) exposure limitations take into account the carcinogineric or mutageneric effects of the contaminant?

Response: No. However, the recommended NIOSH standard did take into account these effects.

10. What happens to PCB that accumulates in the body? Is it ever expelled from the body?

Response: It is not known exactly what happens when PCB accumulates in the body. However, based on animal studies, there does not seem to be any apparent effect after it is accumulated in the body. Animal studies have indicated that PCB's are expelled from the body. However, the rate of expulsion, to some extent, depends on the various PCB isomers. There is some indication that certain isomers may never be expelled from the body. In one experiment, rats were fed for six months with 100 parts per million (ppm) of Aroclor 1242 in their diet. At the end of six months, the PCB level in the adipose (fat) tissues was 240 ppm. Four months after the feeding study, the level dropped to 35 ppm, and at the end of five months, the level dropped to 30 ppm. Furthermore, it appears that there is no observable effect when the PCB's are being expelled from the body in these animal studies.

11. Is there an upper limit that the body will reach when exposed to a continuous low level concentration of PCB's?

    Response: There is no definitive answer to this question. In one rat study, there appears to be an indication that an equilibrium level may be approached but the data is flawed by the fact that in such a long-term study the rats continued to grow and their food consumption varies and decreases as they grow old.

12. What effects will a short-term high concentration exposure have when compared to low level long-term exposure?

    Response: There is also no information on this.

III. BOILER CONDITIONS

1. Has the dwell time reading submitted by General Motors been verified by the Department of Natural Resources?

   Response: Yes. Our calculations indicate the dwell time is one second.

2. When will General Motors substantiate temperature measurements with operating personnel and Department of Natural Resources representatives as witnesses?

   Response: A flame temperature measurement demonstration will be scheduled for DNR representatives and interested operators prior to the November 20, 1979, meeting of the Michgian Air Pollution Control Commisison.

3. How can a continued high degree of destruction efficiency be maintained when burning PCB contaminated waste oil?

   Response: A high degree of destruction efficiency will be assured by closely monitoring and controlling the boiler combustion conditions. Because combustion conditions are indicative of destruction efficiencies, combustion conditions will be maintained under very controlled conditions. The boiler combustion gases must contain at least 3 percent excess oxygen and no more than 50 parts per million of carbon monoxide to assure that combustion is complete. Any violation of these conditions will shut off the supply of PCB contaminated oil to the boiler. In addition to excess oxygen and carbon monoxide, the boiler will be monitored for opacity.

4. What redundant control features will be used on the boiler when burning PCB?

   Response: The boiler combustion parameters will be monitored and controlled. The parameters monitored will be carbon monoxide, excess oxygen, and opacity, which are all indicators of combustion efficiency. If any one combustion parameter is violated, the flow of PCB oil to the furnace will be shut off. In addition, flame conditions will be monitored. If the flame begins to decay, the flow of PCB contaminated oil to the furnace will be shut off.

   The valves which control the flow of PCB contaminated oil to the boiler are fail safe. The burner solenoid valves will close, shutting off oil flow, in the event of a loss of control voltage. The pneumatic (air operated) oil flow control valve will close, shutting off oil flow, in the event of a loss of compressed air. All of the aforementioned controls are in addition to the other existing furnace controls presently installed on the boiler.

5. Will controls automatically shut off the flow of contaminated fuel oil to the boiler in the event that a boiler upset condition is encountered?

   Response: For the verification burn, all of the aforementioned controls will not have automatic shut off capabilities. The verification burn will rely on operator intervention to stop the flow of PCB oil to the boiler in the event that one of the boiler parameters is violated. Air Quality Division staff will witness the entire test program. However, in the event that PCB incineration is allowed on an ongoing basis, the controls will be automated with provisions for alarm and shut down capabilities.

6. How will the level of PCB be measured in the stack? Can we instantly detect high levels of PCB in the boiler flue gases?

   Response: For the verification burn, representative flue gas samples will be taken and collected by the use of impingers and adsorbents as described in GCA Technology's test procedure which was included with the Air Quality Division's October 16, 1979, staff report. All of the collected samples will have to be analyzed in a laboratory to determine the level of PCB that was present in the stack. When the stack concentration has been determined from analysis of the collected samples, the total amount of PCB being emitted out of the stack can be determined and the destruction efficiency calculated. The staff is not aware of any device which can instantly detect PCB stack concentration without laboratory analysis.

7. Will flame temperature be monitored continuously while burning PCB contaminated waste oil?

   Response: No. To date, neither General Motors nor staff has been able to find anyone who can supply this type of equipment.

8. How can it be guaranteed that waste oil with PCB concentrations exceeding 500 parts per million will not be generated and incinerated after permit issuance?

   Response: The permit conditions only allow the burning of PCB contaminated oil during the test burn. The District Engineer for the Bay City area will be responsible for the strict enforcement of this and all other conditions. Violation of any permit condition subjects the permit applicant to a substantial fine and possible permit revocation.

IV. SAMPLING AND ANALYSIS

1. Have we analyzed this plant's critical materials list?

   Response: Yes, General Motors will be required to analyze the reclaimed oil for all 15 of the compounds on their critical materials list and for dibenzofurans, chlorophenols, nitrogen, sulfur, chlorine, carbon, hydrogen, ash, water, sediment, calorific value, carbon residue, and flash point.

2. Will dibenzofurans be generated during the combustion or partial combustion of PCB?

   Response: The amount of dibenzofurans generated will depend on combustion conditions. Significant amounts of dibenzofurans could be genrated under poor combustion conditons. In this boiler and with 50 parts per million PCB's with 99.9 percent destruction, it is expected that maximum stack concentration of dibenzofuran to be below 1 part per billion. Additionally, the test procedures will quantify the stack concentration of dibenzofuran if it is present.

3. Will dioxin be generated during combustion of PCB's?

   Response: The test procedures will quantify the stack concentration of dioxin if it is present. Assuming that chlorophenols are not present in the waste oil, it is unlikely that dioxins will be generated. An analysis for the presence of chlorophenols in the waste oil will be required. If chlorophenols are present in the waste oil, further analysis will be done before we evaluate burning PCB on a continuous basis. The Dow Chemical Company claims that incineration of any organic material can result in generation of dioxins. However, Dr. John R. Gledhill of Dow Chemical Company has indicated that usually no dioxins are detectable when the incineration temperature is above 2000 degrees Fahrenheit as is the case with this boiler.

4. Will other toxic materials, created by the incineration of PCB's or other contaminants in the waste oil, be generated?

Response: The most obvious toxic material that could be generated would be polycyclic aromatic hydrocarbons. This type of compound is usually generated under poor combustion conditions.

Additionally, the test procedure will detect the presence of any polycyclic aromatic hydrocarbons and any halogenated organic compounds.

V. AMBIENT AIR MONITORING

1. What will Chevrolet do to monitor the ambient levels of PCB in the atmosphere before, during, and after the test burn?

   Response: Outside grab samples will be collected upwind of the boiler stack during the verification burn to determine ambient background levels in Bay City. Continuous samples collected inside the boiler stack by GCA, EPA's contractor, during the verification burn will be used along with the background readings to determine the ambinet air levels around the plant.

2. Were state of the art modeling procedures and meteorological data used to calculate ambient impact?

   Response: The modeling techniques and computer programs used by the staff is representative of the most recent technical advances in this field.

3. Was the modeling based on the same boiler operating load as the boiler used for the test burn?

   Response: Yes. The modeling and the test procedures are based upon the furnace load corresponding to a fuel oil flow rate of 4 gallons per minute.

4. Was the applicant's modeling study independently verified by the Air Pollution Control Commission's staff?

   Response: Yes.

5. What are the existing ambient levels of PCB in Bay City?

   Response: It is not known at this time what the existing ambient levels of PCB are. However, as previously stated, the ambient levels will be determined during the test.

6. All of the modeling performed assumed meteorological parameters for the originally anticipated test burn scheduled in mid-August. Since this test, if granted a permit, would be performed in the fall or winter, should there be a re-evaluation in the study relative to changes in meteorological conditions?

   Response: It will not be necessary to re-evaluate the dispersion estimate based on changes in meteorological conditions during the verification burn. The analysis conducted assumes worst case meteorological conditions, regardless of time or season of the year.

VI. BOILER MAINTENANCE

1. How will Chevrolet determine if there is PCB accumulation in the boiler? If this requires washing, what will be done with the washing medium while the tests are being done?

   Response: Samples will be taken of residue on the waterwalls and heat wheel before and after the verification burn and analyzed for PCB content. The boiler will not be cleaned until the results of the analysis of the residue are known. Liquids used to clean the boiler will enter process sewers and go to the Chevrolet-Bay City waste water treatment facility where contaminants such as oil containing PCB will be removed. Solid wastes removed at the waste water treatment facility or directly from the boiler will be disposed of in an appropriate landfill, as per existing PCB regulations. Currently, all of the approved PCB landfills are located outside of Michigan.

2. What will be done with the residue that is filtered out of the reclaim waste oil?

   Response: Residue from filtered reclaim oil will be disposed of in an appropriate landfill, as per existing PCB regulations.

Prepared by: John Vial and George Su
November 8, 1979
JV:GS:mah

STATE OF MICHIGAN

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Glenda F. Robinson
Edwin S. Shannon
Morton Sterling
W.G. Turney
Emmanuel Van Nierop, Ph.D.

Box 30028
Lansing, MI 48909

November 8, 1979

CERTIFIED MAIL

Copies to:
[redacted], W. Gunter,
R. Vanozia, Y.J. Kim

Mr. Don R. Koenig
Plant Engineer
Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, Michigan 48706

Dear Mr. Koenig:

The Michigan Air Pollution Control Commission will meet on November 20, 1979, in the Executive Training Room, Long's Convention Center, which is located at 6810 South Cedar Street in Lansing, Michigan. A copy of the meeting agenda is enclosed.

At 1:00 p.m. the Commission has scheduled consideration of Chevrolet Motor Division's application (No. 484-79) to install equipment to conduct a test burn of oil containing polychlorinated biphenyls (PCB). Enclosed is a copy of the staff's summary and responses to concerns expressed at the October 11, 1979, public hearing in Bay City and the October 16, 1979, Commission meeting in Muskegon. It is respectfully requested that a representative of Chevrolet Motor Division be present at the November 20, 1979, Commission meeting.

If you have any questions concerning the permit application or the Commission's meeting, please contact Mr. Gerald Avery or Mr. John Vial at (517) 322-1333.

Very truly yours,

AIR POLLUTON CONTROL COMMISSION

Del Rector
Delbert Rector
Executive Secretary

DR:mah
Enclosures (2)

cc: Benjamin E. White
Eric Cohen, EPA, Region V
D. Sanchez, EPA, Research Triangle Park

MICHIGAN
THE GREAT LAKE STATE

R1026-8
8/79

11/6/79

Meeting Agenda

MICHIGAN AIR POLLUTION CONTROL COMMISSION

November 20, 1979

Long's Convention Center
Executive Training Room
6810 South Cedar Street
Lansing, Michigan

9:00 a.m. - MEETING CONVENES: Items 1 through 8 will be considered as time allows during either the morning or afternoon session:

1) Announcements

2) Approval of Minutes of Previous Meeting

3) Executive Secretary's Report
   a) Report on staff efforts to handle emissions of toxic discharges.
   b) Staff report on oxidant and lead SIP revisions.
   c) Staff report on proposed Administrative Rules changes.
   d) Proposed Calendar of Meetings for 1980.

4) Legal Counsel's Report

5) Disbursement of Surveillance Fees
Consideration of requests from Macomb County and Muskegon County Health Departments for air surveillance fee funds to support their air pollution control programs.

6) Air Surveillance Fees
Staff recommendation to establish the unit cost of scheduled investigations and investigation difficulty and frequency factors to be used in calculation of the February 1, 1980, surveillance fees.

7) Proposed Fugitive Dust Rules
Staff recommendation for Commission to approve proposed rules R 336.1370 and R 336.1371 for purposes of conducting public hearings.

8) Redesignation of Nonattainment Area for Total Suspended Particulates
Consideration of staff recommendation to redesignate a portion of Delta County as attainment for total suspended particulates and a portion as nonattainment for primary total suspended particulate standards.

SCHEDULED APPEARANCES

9:30 a.m. 9) City of Lansing, Asphalt Plant
Public hearing on proposed Stipulation for Entry of Consent Order to discontinue operation of the City's asphalt plant.

(continued on reverse side)

11:00 a.m. 10) Superior Metal Shredders, Inc., Kalamazoo
Staff recommendation to deny operating permit for metal shredding plant.

11:30 a.m. 11) Public Comment: This is a regularly scheduled agenda item to give individuals and organizations an opportunity to discuss items with the Commission without prior scheduling.

12:00 noon - Lunch

1:00 p.m. 12) General Motors Corporation, Chevrolet Motor Division, Bay City
Consideration of an application for a Permit to Install equipment to conduct a test burn of oil containing polychlorinated biphenyls (PCB).

13) Robinson Asphalt, Inc., Jackson
Staff recommendation to deny permit application to burn No. 4 oil because existing plant in Parma Township is violating the Commisison's rules.

14) Cunningham-Gooding, Ann Arbor
Staff reommendation to deny permit to operate the drum mix asphalt plant.

* * * * * * * * * * * * * * *

December 18, 1979

Long's Convention Center
Lansing, Michigan

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY DIVISION
STAFF ACTIVITY REPORT

November 20, 1979

Applicant

Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, Michigan 48706

Permit to Install No. 484-79

Addendum to October 16, 1979, Staff Activity Report

On June 29, 1979, the staff of the Air Quality Division received from Chevrolet Motor Division, Bay City Plant, an application for a permit to install equipment necessary for burning waste oil containing polychlorinated biphenyls (PCB) in their exisitng oil-fired industrial boiler. Based on the data in the application, identified as No. 484-79, and subsequent meetings with the applicant and other concerned parties, staff had anticipated making a recommendation to the Commission for approval of this permit application at the October 16, 1979, Commission meeting.

Staff held public hearing in Bay City on October 11, 1979, and in Muskegon on October 16, 1979, in regard to this applicaiton. Because of a number of questions raised at this hearing that could not be immediately resolved and because of a request for additional time for review by the Bay City Commission, staff decided to delay recommendation of this application at the October 16, 1979, Commission meeting until all questions could be resolved.

A list of representative questions have been compiled from the two hearings. Attached is the list of these questions and appropriate responses.

Staff intends to discuss this proposal with the Bay City Commission on November 12, 1979. Additionally, this staff report addendum and the attached summary of the public hearing concerns is being sent to all of the people that have expressed an interest in this application. Based upon staff's October 16, 1979, staff report and the attached responses, staff intends to recommend approval of this permit for the verification burn only to the Michigan Air Pollution Control Commission on November 20, 1979, subject to the attached revised special conditions, unless new information is presented at the Bay City Commission meeting or the November 20, 1979, Commission meeting.

Submitted by: John Vial
November 8, 1979
JV:mah

Attachments (2)

See pages 158-172 for attachments.

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STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION

Carl T. Johnson
E. M. Laitala
Dean Pridgeon
Hilary F. Snell
Harry H. Whiteley
Joan L. Wolfe
Charles G. Younglove

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES
STEVENS T. MASON BUILDING, BOX 30028, LANSING, MICHIGAN 48909
HOWARD A. TANNER, Director

November 16, 1977

Chevrolet Motor Division
General Motors Corp.
100 Fitzgerald Street
Bay City, MI 48706

ATTENTION: Mr. D. R. Koenig, Superintendent, Maintenance and Plant Engineering

Gentlemen:

Your application (no. 511-77) for Permit to Install polychlorinated biphenyls (PCBs) oil storage, handling and burning equipment in the three oil fired Wicks boilers has been voided per your request that this application be withdrawn pending further investigation.

We understand that you intend to submit a new application for this equipment in the near future. The following is a list of information that is necessary to process a permit to burn PCBs.

1. A scaled plot plan that clearly shows height, length, and width of all buildings; the height, inside diameter, and location of each boiler stack; the property lines and any significant terrain features.
2. A management control and record keeping program which performs the following functions:
   a. Indentifies the basis for the acceptance or rejection of each batch of polychlorinated biphenyl (PCB) waste material.

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b. Identifies the procedures for analyzing and evaluating each batch of PCB waste material.

c. Identifies and records the source, chemical composition, and quantity of each batch of PCB waste material received for destruction.

d. Identifies the procedures for the picking up of each batch of PCB material and how the emissions from the pick-up procedures are controlled.

e. Identifies the procedures for transporting the PCB waste material and how the emissions from this operation are controlled.

f. Identifies the procedures for unloading the PCB material and how the emissions will be controlled during unloading.

g. Identifies the procedures for storing the PCB material and controlling the emissions during the storage phase.

3. A copy of the submitted Pollution Incident Prevention Plan which addresses the possible spill of pollution materials.

4. A detailed description of how the PCB material will be transferred from the storage equipment to the boilers and how the material will be injected into the boilers.

5. A description of the means (i.e., ambient monitoring program or other test program) that will be conducted to ensure that there are no emissions of PCBs to the atmosphere from the storage and handling of the material.

6. A description of the security measures that will be undertaken to protect against vandalism, sabotage, etc.

7. The analysis, the burning rate, and the total quantity of PCB that is to be burned. Will all three boilers be equipped to burn PCBs at the same time?

8. A description of the possible fuel combinations (oil, gas, waste oils, and PCB) that may be burned in any one boiler at the same time.

9. The maximum expected concentration of HCl in the exhaust gases from burning PCBs. Please show all calculations of this mass balance.

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10. The calculated retention time of the PCB material in the boiler at a temperature greater than or equal to 1800°F and 2000°F. Please show all the calculations used to derive these numbers.

11. The temperature and volumetric flow profile through the boilers and a description of how this profile was derived.

12. The oxygen content profile for the boiler and a description of how this profile was obtained.

13. A description of how the PCB flow to the boilers will be continuously measured and recorded.

14. A description of all of the existing boiler controls that will be used to monitor the operation of the boiler during the burning of PCB material.

15. A description of all of the proposed boiler controls that will be added to monitor the operation of the boiler and the burning of the PCB material.

16. The normal ranges for the parameters being monitored in items 14 and 15.

17. A description of how the parameters listed in item 16 will be monitored and how their measurement will initiate automatic shutdown of the introduction of the PCB material into the boiler.

18. A description of the other procedures not outlined above that will be followed to shut off the supply of PCB material to the boiler. This description should detail each condition that will initiate a shut down of the introduction of the PCB material and the mechanisms that will be used to actually accomplish the shut off of the material.

19. A description of the redundancy that is being designed into each element of the control system.

20. A list of the compounds and a description of the procedures that are to be used to test for these compounds in the exhaust gases from the boilers. The minimum detection level, the collection efficiency of the sampling train, and the percent of recovery of the collected sample must also be submitted for the PCB testing procedure.

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21. An analysis of the PCB material that was being burned when the PCB test was conducted.

22. A description of how the organic halide emissions will be monitored and recorded on a continuous basis.

23. A description of the expected impact that the burning of the PCB materials will have on the particulate and opacity emissions from the boilers.

Thank you for your cooperation. If you have any questions or if you would like to meet to discuss the items in this letter, please call me at (517) 373-8630.

Very truly yours,

Gerald L. Avery, Engineer
Permit Unit
Air Quality Division

GLA:jv
cc: Ben White

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RE-EVALUATION OF MODELING BASED ON WINTER CONDITIONS

Due to the change of seasons in which the PCB destruction testing will be performed, a re-evaluation of the possible "worst case" air quality impact was performed to ensure that meteorological conditions occurring during the winter tests would not result in a more severe condition than would occur in the summer.

Historical records published by the National Weather Service indicate that, besides the temperature being much lower, the major difference between summer and winter is the increase in wind speed. The prevailing direction is still from the Southwest, but the average speed increases from approximately 3.5 m/s in summer to about 6 m/s in the winter. Winter speeds this great can only result in a "neutral" atmospheric stability condition; especially when coupled with the decrease in sunlight intensity in the winter. In light of this, the summer analyses were performed using winter meteorological conditions.

Maximum Concentrations

During the part of the day when testing will occur, the atmosphere, with a 6 m/s wind speed, will be "neutral." However, for short-term "worst case" maximum concentrations, a "slightly unstable" condition will be "forced" to provide an extra measure of conservatism to the estimates. Therefore, short-term concentrations will be based on 1 hour of "C" Stability (slightly unstable) and long-term mean concentrations based upon 10 hours of "D" (neutral) Stability.

Tables 1 and 2 list the maximum concentrations that may be expected during the winter season for the normal plume transport case, and the case of the plume dispersing into the volume immediately behind the building, respectively.

PCB Deposition

Using the approach described in the previous (summer) analysis, the PCB deposition per unit area of ground was computed for a "neutral" plume. These deposition notes are presented in Table 3. Note that the resulting winter deposition will be much smaller than the estimates for the summer.

Downwind Concentrations

Table 4 presents the hourly average ground level ambient concentrations during the conditions that will produce the deposition reported in Table 3 above.

Time-Averaged Maximum Concentration

The concentration resulting from a 2-minute release of PCB was determined for 1 hour and 10 hours. Assuming the 2-minute release occurred at the start of the 1 hour of "C" Stability and was followed by 9 hours of "D" Stability, the 1 hour concentration immediately downwind of the building would be 0.22 $\mu g/m^3$ and the 10 hour average would be 0.081 $\mu g/m^3$.

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TABLE 1. MAXIMUM CONCENTRATIONS WHEN PLUME DISPERSED DOWNWIND - WINTER METEOROLOGY

A. Short-term Maximum will occur 420 m downwind to the northeast of the building

1 hour, "C" Stability, 6 m/s wind speed

No PCB Destruction 0.16 μg/m^3

9.99% Destruction 1.6×10^{-4} μg/m^3

B. 10 Hour Mean Concentration will occur 780 m downwind to the northeast of the building

10 hours, "D" Stability, 6 m/s wind speed

Reduction Factor due to 10 Hour Sampling Period = 0.63

No PCB Destruction 0.048 μg/m^3

99.9% PCB Destruction 4.8×10^{-4} μg/m^3

TABLE 2. MAXIMUM CONCENTRATIONS WHEN PLUME DISPERSED INTO BUILDING WAKE - WINTER METEOROLOGY

Short Term Maximum (1 hour, "C" Stability, 6 m/s wind speed)

No PCB Destruction 3.24 μg/m^3

99.9% Destruction 3.24×10^{-3} μg/m^3

10 Hour Measurement Concentration will be the same.

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TABLE 3. PCB DEPOSITION/AREA (WINTER)

Plume sector (Km)	Plume depletion %	Grams	Sector area (10^2 m^2)	Deposition ($\mu g/m^2$)
0 - 0.25	4.0	37.0	0.0102	3519.0
0.25 - 0.50	2.0	18.5	0.0274	675.0
0.50 - 0.75	1.5	13.8	0.0462	299.0
0.75 - 1.0	1.5	13.9	0.0666	209.0
1.0 - 5.0	11.0	101.7	3.075	33.1
5.0 - 20.0	5.0	46.2	8.6000	5.37
10.0 - 50.0	14.0	129.5	224.675	0.576
50.0 - 100.0	8.0	73.9	623.500	0.119
0 - 100	47.0	434.5	860.000	0.505

TABLE 4. SHORT-TERM PCB GROUND LEVEL CONCENTRATIONS AT PLUME SECTOR CUTOFFS (WINTER)

Downwind distance (m)	PCB concentration no destruction ($\mu g/m^3$)	PCB concentration 99.9% destruction ($\mu g/m^3$)
250	0.34	4.9×10^{-4}
500	0.34	3.4×10^{-4}
750	0.23	2.3×10^{-4}
1,000	0.18	1.8×10^{-4}
5,000	0.021	2.1×10^{-5}
10,000	0.0082	8.2×10^{-6}
50,000	0.00088	8.8×10^{-7}
100,000	0.00033	3.3×10^{-7}

General Motors Statement to the

MICHIGAN AIR POLLUTION CONTROL COMMISSION
REGARDING THE PCB TEST BURN AT
CHEVROLET-BAY CITY
NOVEMBER 20, 1979

General Motors appreciates the opportunity to speak before the Michigan Air Pollution Control Commission regarding the PCB test burn at Chevrolet-Bay City. To start, we would like to make the following points: 1) We would not support any program that would be dangerous to the health of the workers or the community. 2) We believe what we are proposing is not a health hazard. 3) We are taking steps to insure that the health of our workers will be protected. 4) And we are here today seeking a delay so that we can more clearly explain this test burn program to the people of Bay City.

In order to give you some background on why Chevrolet became involved in this project, it might be helpful if we explained some of the significant events that have occurred over the last few years. On September 2, 1977, the Air Quality Division of the Department of Natural Resources notified Chevrolet-Bay City that an approved air permit application must be obtained from the MAPCC before any further burning of PCB contaminated oils could be authorized. At that time, there were no federal regulations which governed the burning of PCB contaminated oils. However, state regulations, which became effective on April 9, 1977, did require authorization from the Department of Natural Resources before burning of oils containing 100 ppm of PCB or more could occur. Since March of 1977, Chevrolet-Bay City has not burned any waste oils containing PCBs and has been collecting these waste oils to the point where 38,000 gallons are now stored on its property.

On February 17, 1978, the United States Environmental Protection Agency promulgated regulations which restricted the disposal of mixtures containing 500 ppm or more of PCBs. Then on June 7, 1978 the United States Environmental Protection Agency proposed regulations which governed the manufacturing, processing, distribution in commerce, and use of PCBs. The proposed regulations changed the definition of PCB mixture from 500 ppm to 50 ppm and applied this definition to the marking and disposal requirements promulgated on February 17, 1978.

On April 6, 1979, the United States Environmental Protection Agency contacted General Motors and asked if we would be interested in supplying an industrial boiler which could be used to measure the destruction efficiency of PCB contaminated oil having concentrations between 50 and 500 ppm. The reason for this request was that EPA was soon to prumulgate regulations (on May 31, 1979) which would allow PCB contaminated oils with concentrations between 50 and 500 ppm to be disposed in either an EPA approved incinerator, an EPA approved chemical waste landfill or an EPA approved high efficiency boiler.

Knowing that Chevrolet-Bay City had the appropriate boilers and quantities of low level PCB waste oil, the Corporation asked Chevrolet-Bay City if it was interested in working with the United States Environmental Protection Agency. Chevrolet-Bay City agreed, and for the past several months has been working closely with the Environmental Protection Agency and the Air Quality Division of the Department of Natural Resources to develop a permit application which would be acceptable to the Michigan Air Pollution Control Commission and the residents of Bay City. Towards this end and pursuant to requests made by employes, Chevrolet-Bay City has provided physical examinations, including blood analyses, for all powerhouse boiler operators who worked in the powerhouse during the previous burning of PCB contaminated oil.

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Although the United States Environmental Protection Agency had approved and endorsed this test burn program, and the Air Quality Division had indicated preliminary approval, some citizens from Bay City, along with the Bay City Commission, and the Bay County Commissioners, have expressed their concern about the test burn program. Because of this concern and the importance of this program to the disposal of this persistent substance, General Motors would like an opportunity to try to answer the citizens' concerns and more clearly explain why we believe this test burn program presents a more environmentally acceptable method to dispose of this substance than either temporary storage or landfilling.

Since there are no EPA approved incinerators to dispose of PCB contaminated oils with concentrations between 50 and 500 ppm, General Motors' other alternatives are to either continue to temporarily store the PCB contaminated waste oil until an incinerator is approved or send this waste oil to a chemical waste landfill. General Motors, including the management at Chevrolet-Bay City, strongly believes that this test burn program offers the best technology with the least risks to dispose of PCB contaminated waste oil. For the above reasons we would like to ask you to delay action on Chevrolet's permit application until the December, 1979 meeting.

PCB - PCB - BAY CITY - November 20, 1979

QUESTIONS AND ANSWERS:

Question: Despite the fact that all the people you tested seem to be within the allowable limits, how do you explain why the powerhouse group ranged higher in PCBs than the non-powerhouse group?

Answer: We feel that there is enough correlation between PCB blood levels and high blood fat levels to explain the differences, especially for the relatively higher readings.

Question: You said you would be doing more blood tests. Will you wait until you have those in hand before you proceed with the permit request from the state for a PCB verification burn?

Answer: No. The additional tests will expand the data base, and provide reassurance for our other employes.

Question: How many more employes will be given blood tests?

Answer: About 80 people have already volunteered and we feel that is an adequate number.

Question: You had two laboratories conduct the tests on split samples of blood. Were the results the same?

QUESTIONS AND ANSWERS

Page 2 (cont'd.)

Answer: The results we are using are from the state health department lab, but allowing for calibration variances, the other lab results closely parallel these. When we do the further tests, we expect to use only the state lab for the PCB work.

Question: Do you have any plans now to do fatty tissue samples?

Answer: Probably not. We had planned to test fatty tissue samples if we found high readings among the employes, but since they are in the "background level" range, we do not feel the fatty tissue tests are necessary, unless certain employes request them.

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MICHIGAN DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY DIVISION
STAFF ACTIVITY REPORT

November 20, 1979

Applicant

Chevrolet Motor Division
General Motors Corporation
100 Fitzgerald Street
Bay City, Michigan 48706

Permit to Install No. 484-79

Addendum to October 16, 1979, Staff Activity Report

On June 29, 1979, the staff of the Air Quality Division received from Chevrolet Motor Division, Bay City Plant, an application for a permit to install equipment necessary for burning waste oil containing polychlorinated biphenyls (PCB) in their exisitng oil-fired industrial boiler. Based on the data in the application, identified as No. 484-79, and subsequent meetings with the applicant and other concerned parties, staff had anticipated making a recommendation to the Commission for approval of this permit application at the October 16, 1979, Commission meeting.

Staff held public hearing in Bay City on October 11, 1979, and in Muskegon on October 16, 1979, in regard to this applicaiton. Because of a number of questions raised at this hearing that could not be immediately resolved and because of a request for additional time for review by the Bay City Commission, staff decided to delay recommendation of this application at the October 16, 1979, Commission meeting until all questions could be resolved.

A list of representative questions have been compiled from the two hearings. Attached is the list of these questions and appropriate responses.

Staff intends to discuss this proposal with the Bay City Commission on November 12, 1979. Additionally, this staff report addendum and the attached summary of the public hearing concerns is being sent to all of the people that have expressed an interest in this application. Based upon staff's October 16, 1979, staff report and the attached responses, staff intends to recommend approval of this permit for the verification burn only to the Michigan Air Pollution Control Commission on November 20, 1979, subject to the attached revised special conditions, unless new information is presented at the Bay City Commission meeting or the November 20, 1979, Commission meeting.

Submitted by: John Vial
November 8, 1979
JV:mah

Attachments (2)

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Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, Michigan 48090

November 26, 1979

Mr. Del Rector, Chief
Air Quality Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909

Dear Mr. Rector:

Re: Response to October 17, 1979 Letter to
Mr. Del Rector from Mr. Morton Sterling, Concerning
the PCB Test Burn at Chevrolet - Bay City

In this letter, we would like to respond to the thirteen questions posed in the October 17, 1979 correspondence from Mr. Morton Sterling.

1. What effect, if any, will Public Act 64, PA of 1979 (Hazardous Waste Management Act) have on this application.

   Response: It is difficult to define exactly what impact the regulations pursuant to Act 64, Public Acts of 1979 (Hazardous Waste Management Act) will have because these regulations are only in the draft stage. Since it will probably be sometime before these regulations are finalized, we would not expect any effect on the installation permit for the test burn. Further, Act 64 will not become effective until 1980.

2. Insufficient information is provided on the intended storage of PCB and subsequent mixing with fuel oil. How is the ten to one firing ratio assured? Will there be emission controls fitted on the PCB storage tank vents? No mention is made of control in the PCB storage area due to runoffs and leaks.

   Response: The ten to one firing ratio will be assured by mixing the contaminated PCB oil with new oil in a separate batch tank before the mixture is fed to the boiler. If a throughput of 60,000 gallons of 500 ppm PCB waste oil per year is assumed (actual throughput is expected to be between 12,000 and 24,000 gallons per year), total vented emissions will not exceed .65 mg per year. Since this emission rate is extremely small, we feel that there is no need to control the PCB storage tank vents. The PCB contaminated oil will be stored in tanks which are either properly dyked or adequately equipped with sumps so that any runoffs due to a spill or a leak would be contained.

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3. Union representatives indicated the PCB waste oils partially originate from the in-plant sewer system, then are skimmed off at their central processing facility. Will excessive amounts of PCB's be discharged into the general treatment system and beyond?

   Response: The plant's wastewater discharge has been monitored for PCB's. No problem levels have been detected.

4. Since temperature is considered to be one of the key operating parameters to assure effective destruction of the PCB, it would seem prudent to include a continuous monitor for this parameter.

   Response: Since flame temperature profile will be measured and verified prior to the PCB burns while the boiler is operating at a fuel feed rate of 4 gpm (50% load) and since the 4 gpm fuel feed rate is an operating condition of the permit, this same temperature profile should exist during the PCB burns. As a result, no continuous monitor for temperature should be needed as long as the other continuous monitoring instruments are indicating and controlling for optimum boiler combustion conditions. However, we are looking into the possibility of securing an optical pyrometer for the test burn.

5. Will you be requiring any redundancies with respect to key continuous monitors and the instrumentation panel? It would seem appropriate to do so.

   Response: The boiler combustion parameters will be monitored and controlled. The parameters monitored will be carbon monoxide, excess oxygen, and opacity, which are all indicators of combustion efficiency. If any one combustion parameter is violated, the flow of PCB oil to the furnace will be shut off. In addition, flame conditions will be monitored. If the flame begins to decay, the flow of PCB contaminated oil to the furnace will be shut off.

   The valves which control the flow of PCB contaminated oil to the boiler are fail safe. The burner solenoid valves will close, shutting off oil flow, in the event of a loss of control voltage. The pneumatic (air operated) oil flow control valve will close, shutting off oil flow, in the event of a loss of compressed air. All of the aforementioned controls are in addition to the other existing furnace controls presently installed on the boiler.

6. The staff report compared modeled PCB ambient air concentrations with relation to the TLV. The TLV, I believe, does not consider the carcinogenicity or mutagenicity effects of the contaminant.

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Response: The TLV which was the basis for the currently enforceable Occupational Safety and Health Administration (OSHA) PCB exposure limitations does not take into account the carcinogenic or mutagenic effects of this contaminant. However, the recommended NIOSH PCB standard of 1 $\mu g/m^3$ did take into account these effects.

7. The staff report indicates that in the previously rejected application for this project, concern was expressed about hydrogen chloride emissions. No mention is made in the current application evaluation, and some explanation is necessary as to why these emissions are no longer of concern.

   Response: Updated calculations indicate that hydrogen chloride concentrations will be low enough that control will not be necessary. The OSHA TLV for hydrogen chloride is 5 ppm and the amount being generated by this test is .8 ppm, calculated as an in-stack concentration.

8. The consultant's test program was planned for mid-August. All of the modeling undertaken assumed meteorological parameters for this time period. Since the tests will apparently be undertaken in the winter, should there be some re-evaluation as to the effects of the changes in meteorological conditions on the calculated results?

   Response: It will not be necessary to re-evaluate the dispersion estimate based on changes in meteorological conditions during the verification burn. The analysis conducted by the DNR staff assumes worst case meteorological conditions, regardless of time or season of the year.

9. In Appendix A, the modeling was undertaken at design operating loads. The plume rise was almost as great as the actual stack height. General Motors indicates that the boiler may at times be operated at one-quarter load; this would ostensibly reduce the plume rise and could cause increases in ground level impacts. Should the consultant be requested to consider this factor in his evaluation?

   Response: The modeling was not done at design operating loads. The modeling and test procedures are based upon the furnace load corresponding to a fuel oil flow rate of four gallons per minute (50% of full load).

10. In Appendix A, page 32, the consultant indicates the TLV includes carcinogenic effects. I believe this is an error.

    Response: The TLV for PCB's does not include carcinogenic or mutagenic effects.

11. In Appendix A, the consultant gives perfunctory consideration to highly toxic dibenzofurans. The assumption is made that combustion would be complete, whereas in all other aspects of the permit application, worst

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case estimates were made. Will dibenzofurans be emitted to partial combustion in any amounts of concern?

Response: The amount of dibenzofurans generated will depend on combustion conditions. Significant amounts of dibenzofurans could be generated under poor combustion conditions. Maximum theoretical in-stack concentrations assuming 100% conversion of PCB's to dibenzofurans, are estimated to be below one part per million. However, since dibenzofurans are very unstable once they are formed at temperatures above 1,500°F and since PCB destruction is expected to be at least 99.9%, we project the in-stack concentrations to be significantly less than one part per billion. Additionally, the test procedures will quantify the stack concentration of dibenzofuran if it is present.

12. There is no mention of requiring a management and waste record-keeping system. This certainly should be part of the permit requirements.

Response: At this time, the DNR and the public know how much PCB waste oil is stored and the quantity of PCB's which will be used in the test burn. When it comes time to apply for a permit-to-operate, Chevrolet-Bay City will propose a type of management and waste record-keeping system which would be appropriate.

13. In any final consideration of a permit to install and operate, it would seem appropriate to have an automatic expiration of the operating permit after some stipulated period of time; say, six months. At the end of this period, the results of the experience of the prevous six months should be reviewed by an outside expert group to assure the agency that all the expected results are acceptable and to consider desirable modifications to any continuing operating permit.

Response: General Motors would support a DNR sponsored audit of past PCB burns at any frequency which is deemed reasonable and appropriate. However, we do not feel that it is necessary to have an automatic expiration of an operating permit since the DNR or the Commission has the power to revoke any operating permit if a permit condition is not being met or a Commission rule is being violated.

If you have any further requestions regarding the above response, please contact the writer at 313-575-8609.

Anthony Fisher, Ph.D.
Plant Environment

6ARF/1115/D
cc: N. C. Kachman - GM Environmental Activities Staff
D. R. Koenig - Chevrolet - Bay City
M. Sterling - Michigan Air Pollution Control Commission

BECAUSE OF ILLEGIBLE ORIGINAL, THIS
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Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, Michigan 48090

November 28, 1979

Mr. D. C. Sanchez
MD-62
U.S. Environmental Protection Agency
Research Triangle Park, N. C.
27711

Re: PCB Test Burn at Chevrolet-Bay City

Dear Mr. Sanchez:

As the result of the 30-day permit action delay that was granted General Motors on November 20, 1979, by the Michigan Air Pollution Control Commission, the PCB test burn will have to be conducted after the first of the year. This delay was requested so that we could have the time to address the concerns of the people and the elected officials in Bay City and Bay County relating to this test burn.

The EPA has been very supportive through its help and the contracted involvement of GCA Technology in putting together this program for Chevrolet-Bay City and we would appreciate your continued moral and financial support after the first of the year when, hopefully, the test burn will take place.

General Motors believes that burning of low level PCBs in high efficiency boilers would be a positive affordable alternative in dealing with these wastes. Also, General Motors feels that this approach presents a more environmentally acceptable method to dispose of this chemical than either temporary storage or landfill.

Again, we would like to express our thanks for EPA's support for the test burn program during 1979, and we look forward to working with you during 1980.

Sincerely,

Anthony Fisher, Ph.D.

mlj
cc: Mr. J. W. Gunter, EPA-Washington
Mr. D. R. Koenig, Chevrolet-Bay City

ET
Bay City Plant

December 11, 1979

Del Rector, Chief
Air Quality Division
Michigan Dept. of Natural
  Resources
P.O. Box 30028
Lansing, MI 48909

Dear Mr. Rector:

We would like to request that Agenda Item 16 relating to consideration for obtaining an installation permit for a PCB test burn at the Chevrolet Plant in Bay City not be taken up at the December 18, 1979 meeting of the Michigan Air Pollution Control Commission.

We would appreciate it if this item could be scheduled for the February 1980 Commission meeting. In order to save the Commission's time for other agenda items, General Motors does not plan to present a statement at the December meeting relating to the proposed PCB test burn.

Thank you for your patience and support in this matter.

Very truly yours,

D. R. Koenig

D. R. Koenig
Plant Engineer

DRK:vm

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

HOWARD A. TANNER, Director

L RESOURCES COMMISSION
OS A. HOEFER
RL T. JOHNSON
E M. LAITALA
HILARY F. SNELL
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

AIR POLLUTION CONTROL COMMISSION
Maurice S. Reizen, M.D.
Chairman
James A. Brewer, Sr.
[redacted]
Mary L. Brown
Edward J. Kimpp, Jr., M.D.
Donald R. Nash
Glenda F. Robinson
Edwin B. Shannon
Morton Sterling
[redacted]
Emmanuel Van Nierop, Ph.D.

Box 30028
Lansing, MI 48909

December 11, 1979

NOTICE OF CANCELLATION

SUBJECT: Chevrolet Motor Division, Bay City, Permit to Install No. 484-79

The Michigan Air Pollution Control Commission had scheduled consideration of the subject permit application for 11:00 a.m. on Tuesday, December 18, 1979, in Lansing, Michigan; and a copy of that agenda was previously mailed to all citizens who have expressed an interest in that permit application.

Chevrolet Motor Division has been granted their request to be removed from the Commission's December agenda, and this matter will tentatively be scheduled for the Commission's February 19, 1980, meeting to be held at Long's Convention Center in Lansing. We will send you a notice when this matter is rescheduled for Commission consideration.

In the meantime, if you have any questions, please feel free to contact Mr. John Vial or Mr. Gerald Avery in this office at (517) 322-1333.

Sincerely,

AIR POLLUTION CONTROL COMMISSION

Delbert Rector

Delbert Rector
Executive Secretary

DR:mah

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THE GREAT LAKE STATE

R1026 8
8/78

CHEVROLET MOTOR DIVISION

General Motors Corporation

Bay City
100 Fitzgerald
Bay City, Michigan

December 14, 1979

Del Rector, Chief
Air Quality Division
Michigan Department of
Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Dear Mr. Rector:

Please find attached, a copy of our Chevrolet Public Relations press release of Wednesday, December 12, 1979, concerning our request for a 60-day delay from the Michigan Air Pollution Control Commission for the PCB test burn permit.

The press release contains the details of our planned program for the next 60 days and may be used by you to keep the MAPCC and MDNR Staff current on this project.

Again, thank you for your patience and support in this matter.

Very truly yours,

D. R. Koenig

D.R. Koenig
Plant Engineer

DRK/tms
encl.

RESPONSE TO NEWS INQUIRIES CONCERNING PCB BLOOD TEST RESULTS AT CHEVROLET - BAY CITY

Results of blood tests conducted on 23 employes at Chevrolet - Bay City indicate that PCB levels for all employes tested are within the range considered average by the Michigan State Health Department.

Dr. Thomas A. Hockman, the plant's medical director, called the results "reassuring".

The state health department has indicated that PCB blood levels for Michigan citizens can be expected to range between five and 40 parts per billion. (A part per billion can be compared to an ounce of liquid in 7,812,500 gallons of liquid, or about one drop in a tank truck full.

The PCB blood levels for all the Bay City employes tested ranged from six to 36 parts per billion.

For the 13 employes in the test group who work in the plant's powerhouse, the range of PCB levels was from seven to 36 parts per billion. For a group of 10 non-powerhouse employes, the range was from six to 15 parts per billion.

Dr. Hockman also said he had observed a "suggestive correlation" between levels of dietary fats in the blood and blood levels of PCB. He added, however, that he did not see a conclusive relationship between PCB levels of persons who did and did not eat fish from Saginaw Bay, but that larger samples might reveal more significant correlation with both blood fat and fish-eating factors.

The plant plans to conduct further blood tests on a wider sample of employes who have volunteered to be tested.

"We expect the additional tests will further confirm that Chevrolet - Bay City employes do not have higher PCB blood levels than are found in the Michigan population at large," Hockman said.

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Prepared by: J. D. Hudgens
Chevrolet
Public Relations

FOR RELEASE: Wednesday, December 12, 1979

Bay City (December 12) -- Chevrolet - Bay City has asked the Michigan Air Pollution Control Commission to postpone until February a decision on the permit to allow the plant to conduct a test burn of waste oil containing small amounts of PCBs.

The request was contained in a letter to Del Rector, Chief of the Air Quality Division of the Department of Natural Resources, from Donald R. Koenig, Plant Engineer at the Bay City facility. The letter noted that no General Motors representative would speak on the issue at the Commission's December 18 meeting as previously scheduled.

In additional comments, Koenig said: "We are aware there are widespread misconceptions about what we are proposing to do. We would like to proceed with as much support as possible -- from our employees, city and county government, the news media and the public at large, and to do that we need more time."

Koenig added that in January, plant officials would:

1. Conduct further meetings with plant employees to explain and discuss the PCB situation at the plant.
2. Hold briefings at the plant for city and county elected officials and the news media.
3. Conduct further health examination on a group of about 50 employee volunteers who have not had in-plant exposure to oils containing PCBs. The testing program will be conducted with the assistance of the Michigan Department of Health Laboratory.

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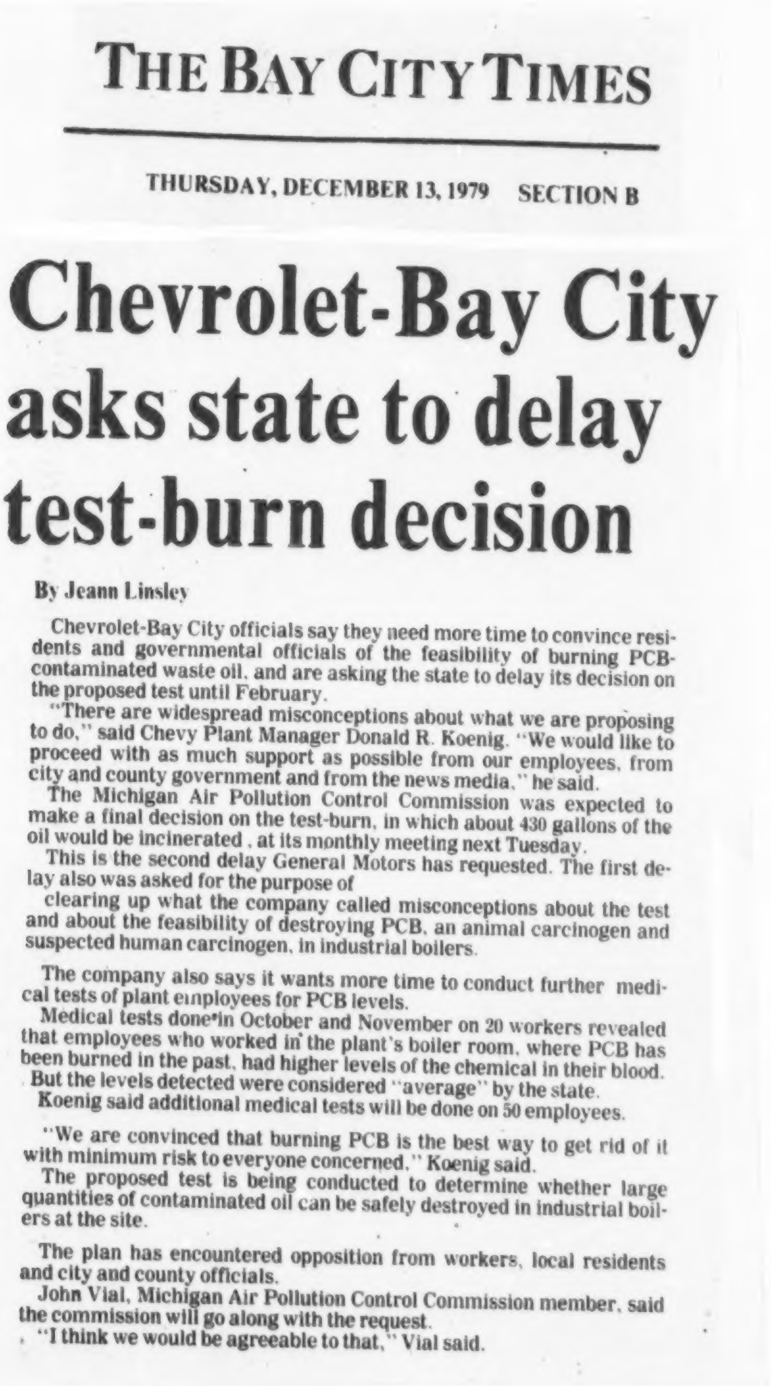
4. Explore the feasibility of meetings with interested outside groups in the Bay City area, such as service clubs and conservation groups.

Koenig said that the plant still agrees with the EPA that waste oil containing low levels of PCBs can be burned safely and effectively in high-efficiency industrial boilers.

"We are convinced that burning the PCBs offers the best way to get rid of them for all time with minimum risk to everyone concerned. It is a socially responsible thing to do. We do not want to leave this problem for future generations," Koenig said.

APPENDIX C - PRESS COVERAGE OF PERMIT APPLICATION PROCESS

ok



THE BAY CITY TIMES

THURSDAY, DECEMBER 13, 1979 SECTION B

Chevrolet-Bay City asks state to delay test-burn decision

By Jeann Linsley

Chevrolet-Bay City officials say they need more time to convince residents and governmental officials of the feasibility of burning PCB-contaminated waste oil, and are asking the state to delay its decision on the proposed test until February.

"There are widespread misconceptions about what we are proposing to do," said Chevy Plant Manager Donald R. Koenig. "We would like to proceed with as much support as possible from our employees, from city and county government and from the news media," he said.

The Michigan Air Pollution Control Commission was expected to make a final decision on the test-burn, in which about 430 gallons of the oil would be incinerated, at its monthly meeting next Tuesday.

This is the second delay General Motors has requested. The first delay also was asked for the purpose of clearing up what the company called misconceptions about the test and about the feasibility of destroying PCB, an animal carcinogen and suspected human carcinogen, in industrial boilers.

The company also says it wants more time to conduct further medical tests of plant employees for PCB levels.

Medical tests done in October and November on 20 workers revealed that employees who worked in the plant's boiler room, where PCB has been burned in the past, had higher levels of the chemical in their blood.

But the levels detected were considered "average" by the state.

Koenig said additional medical tests will be done on 50 employees.

"We are convinced that burning PCB is the best way to get rid of it with minimum risk to everyone concerned," Koenig said.

The proposed test is being conducted to determine whether large quantities of contaminated oil can be safely destroyed in industrial boilers at the site.

The plan has encountered opposition from workers, local residents and city and county officials.

John Vial, Michigan Air Pollution Control Commission member, said the commission will go along with the request.

"I think we would be agreeable to that," Vial said.

8

THE BAY CITY TIMES
BAY CITY, MICHIGAN FRIDAY, SEPTEMBER 28, 1979

Chevy gets OK to burn PCB oil contaminates

By Jeana Linsley

Bay City Chevrolet has obtained preliminary approval from the Michigan Air Pollution Control Commission to burn waste oil containing the cancer-causing chemical PCB (polychlorinated biphenyl).,

Chevrolet officials applied for a permit to conduct a "test-burn" of the contaminated oil on June 29, according to John Vial, a Department of Natural Resources air quality division engineer.

"This is a test burn only," Vial said. He said there will be three separate six-hour tests in which about 430 gallons of PCB-contaminated hydraulic waste oil will be burned in oil-fired high efficiency burners which are now used to produce power on the plant site.

PCB is a heat-resistant chemical used in electrical transformers. It has been found to cause cancer in laboratory animals. The Environmental Protection Agency banned the manufacture of PCB in May and has placed stringent controls on its disposal.

Until the early 1970s, Chevrolet used the chemical in hydraulic oil to keep it from heating up and burning.

Final approval of the company's request hinges on the results of a public comment period, which ends Oct. 15, and a public hearing Oct. 16 in Muskegon Heights.

Vial said the burner at the plant site meets all EPA requirements for disposal of PCB.

Special special monitoring equipment, capable of detecting minute quantities of PCB, will be installed, he said.

The company has assured the DNR and the EPA that the boiler will eliminate more than 99 percent of the PCB contamination, and that almost no PCB will escape into the atmosphere, Vial said.

However, it is uncertain what the exact results will be until the testing is finished, because a commercial-scale operation of this type is new to this area, said Y.J. Kim, a chemist with the EPA's Region Five headquarter in Chicago.

"As far as I know, it's never been done before in this area," Kim said.

David Hudgens, a spokesman for General Motors' regional office in Flint, said, "we are talking about very small, trace amounts of this (PCB)."

Approval by the Michigan Air Pollution Control Commission, whose disposal requirements must be equally a strict as the EPA's, will be the final step before the incineration can begin, Vial said.

The EPA recently relaxed its standards for disposal of the chemical because of industry complaints that earlier standards would make disposal too costly.

Chevrolet eliminated all PCB-contaminated hydraulic oil from its Bay City plant in the early 1970s, Hudgens said, when health risks of PCBs were beginning to receive attention.

The plant is storing the oil on-site, he said.

local

THE BAY CITY TIMES

WEDNESDAY, OCTOBER 3, 1979 SECTION B

Operators label boiler unsafe for burning PCB

By Jeann Linsley

Oil-fired burners at Bay City Chevrolet which could soon begin burning contaminated waste oil are in deteriorating condition and inadequate to burn the toxic flame retardant, several operators of the burners have charged.

In a letter to the state Department of Natural Resources, one boiler operator says the on-site burners used in 1976 to burn some contaminated oil became so clogged with residue and debris that an explosion almost resulted.

Chevrolet has been granted preliminary approval from the DNR to conduct a "test burn" of the waste oil.

The operator, Andre Day, and six other boiler operators have written letters of protest to the DNR and to United Auto Workers Local 362 alleging health risks may result from burning the PCB-contaminated oil.

The company would burn about 430 gallons of oil during the test. If the test burn is successful, Chevrolet would incinerate the remainder of the waste oil, left over when company officials "purged" the plant of all hydraulic oil containing PCB.

The PCB-containing oil was removed from the plant in the early 1970s, when health risks of PCB were uncovered.

Some of the oil already has been burned, while the rest is stored at Chevrolet's wastewater treatment facility, on the plant site.

Polychlorinated biphenyl, or PCB, is a heat-resistant chemical used in electrical equipment as insulation. It is known to cause cancer in animals and is a suspected carcinogen in humans.

Chevrolet used PCB in hydraulic oil to keep it from overheating.

In his letter to the DNR, Day, a boiler operator at the Bay City plant for 15 years, said when the oil was burned in 1976, before strict federal and state standards on PCB went into effect, heavy damage to the burners resulted. The damage has not been repaired, according to Day's letter.

Workers hand-cleaned the boiler by spraying solvent on its components, then washed it down with water, Day said.

"This water gets on the worker's clothing, leaks all over the floor, then goes into the public sewer system," Day said.

Day said certain components of the boiler had to be cleaned every two to three days because of residue plugging them. The equipment normally would have to be cleaned every six months, he said.

"Breachings," which are part of the burner's emissions stack between the boiler and the outside of the building, have deteriorated so badly from the burning in 1976 that heavy fumes could leak from the breachings into the boiler room, which workers would breathe, Day's letter says.

"After the (1976) test, we tried throughout the year different ways of burning this waste oil...and it still fouled the equipment until we almost had an explosion and I refused to accept the waste oil for burning," the letter says.

Day said the burners, which supply process steam to the plant, are not intended for incineration of substances that like PCB require very high heat levels before they are destroyed.

"These boilers cannot attain the 2,000 degree heat required to burn this oil," Day said. In addition, the boiler is incapable of maintaining the oil inside long enough to destroy it, he said.

Chevrolet officials first applied for a permit to burn the oil in 1977 under new state regulations clamping down on the chemical. The company had burned the waste oil for about two years prior to that.

But Chevrolet's application for a permit under the new rules was rejected by the DNR because the boiler did not meet specifications in the law for burning.

Although DNR officials now say the boiler meets requirements, Day and the other operators claim the burner is in worse condition than it was when the first permit was denied.

John Vial, DNR air quality engineer, said company officials have assured him the burners are capable of destroying the PCB.

"We have had a number of meetings with Chevrolet officials and they never indicated there were any operational problems with the boilers," Vial said.

Vial said he also inspected the boiler, and it appeared to be in "very good condition."

"We're putting very strict limitations on the operation of the boilers to make sure the combustion efficiency is maintained," he said.

When the first permit was denied, Chevrolet had not met requirements for temperature and "dwell time," or the length of time the oil is in the boiler, he said. Those requirements have been met now.

Vial said earlier that special equipment capable of measuring minute quantities of PCB would be installed on the boiler, but William Gunter, of the Environmental Protection Agency's toxic substances office in Washington D.C., said there is no real way to monitor directly for the chemical.

"It's kind of hard to monitor for PCB, but we use other indicators to measure how well is it's being burned," Gunter said.

He said the Chevrolet test-burn is one of only two such experiments in the country being discussed by the EPA.

The other one, a proposed incineration experiment in Sanford, Fla., is only in the discussion stages, he said.

Final approval of the test by the Michigan Air Pollution Control Commission, part of the DNR's air quality division, hinges on a public comment period, and public hearings in Bay City Oct. 11, and Muskegon Heights Oct. 16.

Manufacture of PCB has been banned both at the state and federal levels, and both have placed controls on use, distribution and disposal of existing PCB in an effort to phase it out completely.

The chemical, used in many types of electrical equipment, also is used in paints and pigments.

Waste oil containing the chemical has been used as a sealant, herbicide carrier and dust control agent on roads, but those uses have been banned by the EPA.

EPA officials are more wary of PCB-contaminated waste oil because they are not as certain of PCB levels in the oil, Gunter said.

For that reason, the agency places stricter requirements on incinerating waste oil, he said.

Companies burning waste oil, for instance, must obtain EPA as well as state approval, he said.

"There are more unknowns in waste oil," Gunter said.

A General Electric facility in Massachusetts now is conducting an experimental burn of electrical transformer fluid containing PCB, he said.

But Chevrolet's incineration test will be the first using waste oil, if the similar project being discussed in Florida isn't started first, he said.

General Motors spokesman David Hudgens said the amounts of PCB in the oil are so small that their incineration shouldn't cause concern.

He said the burner should remove more than 99 percent of the chemical from the oil, and that only trace amounts probably will escape into the air.

Oct. 11 Bay City hearing on PCB burning

The Department of Natural Resources has decided at the last minute to hold a hearing Oct. 11 in Bay City on the proposed burning of PCB-contaminated waste oil by Chevrolet.

State Rep. James A. Barcia, D-Bay City, reportedly contacted the air pollution control commission late last week to ask why only an Oct. 16 hearing, in Muskegon Heights, was scheduled.

The commission then agreed to schedule the Bay City hearing.

The hearing originally was scheduled for Muskegon Heights because that is the location for the air pollution control commission's regular meeting, said John Vial, DNR quality engineer. That hearing still will be held, he said.

Ok

FOR FURTHER INFORMATION
CONTACT: J.D. Hudgens
313-766-1565

10-9-79

BACKGROUND-- PROPOSED BURN OF PCB CONTAMINATED OIL AT CHEVROLET BAY CITY

Chevrolet Motor Division, General Motors Corporation, is cooperating with the U.S. Environmental Protection Agency (EPA) in a test program to confirm that waste oil containing small amounts of the toxic fire retardant chemical, polychlorinated biphenyl (PCB) can be burned effectively and safely in high efficiency industrial boilers.

At the request of the EPA, the Chevrolet Bay City plant applied in June to the Michigan Department of Natural Resources (DNR) for a permit to conduct a verification burn of the waste oil.

The PCBs in the oil are residual amounts from prior years, when the plant used the chemical in its hydraulic systems. The chemical has not been used in plant operations since 1974, when all plant systems containing PCB were purged.

Other test results and scientific analysis indicate that under the proper conditions more than 99.9 percent of the PCB in the oil will be destroyed in the burning process.

Government officials and industry leaders are anxious to confirm that PCB can be disposed of safely in industrial boilers. If the tests at Chevrolet Bay City are successful, PCB contaminated oil could be burned safely in other areas of the country, limiting the amounts of the toxic chemical to be buried in landfills. In addition, burning the waste oil would mean that less precious "new oil" would be used.

-more-

Chevrolet's permit request was prepared with the help of the EPA, the DNR and GCA Technology Corporation, Bedford, Mass., an EPA Contractor. GCA actually will conduct and monitor the test burn, with the assistance of plant personnel and engineers from the EPA and DNR.

Guidelines for the proposed test specify stringent and comprehensive controls for the verification burn, including a 10:1 ratio of new oil to waste oil, and continuous monitoring of the combustion process and of fuel flow. The boiler to be used in the test--boiler #3-- will be equipped with sophisticated safety systems, including fail-safe capabilities.

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B. C. Times Sun. 10-11-79

140 General Notices

ATTENTION
ALL U. A. W.
MEMBERS

HELP

PROTECT
Your Physical Future
PROTEST
P. C. B. Burning
At Bay City
Chevrolet

THIS COMPOUND
IS KNOWN
TO CAUSE

CANCER

IN RATS
AND IS
A SUSPECTED
HUMAN
CARCINOGEN

Bay County
U.A.W.
Community Action
Program Council
STRONGLY

URGE
and
REQUEST

THAT YOU AND YOUR
FAMILY MAKE EVERY
POSSIBLE EFFORT TO
ATTEND

THE BAY COUNTY
COMMISSION
MEETING
MONDAY NOV. 12 7:30
p.m.
BAY CITY
COMMUNITY
CENTER

NEWS — VIEWS

BAY CITY

TODAY TOMORROW TOGETHER

October 10, 1979 Jan Turner, Editor, Ext. 229 Special Issue

The following information is being provided to Chevrolet-Bay City employes as a background on a subject which has recently received local attention

SUBJECT: PROPOSED BURN OF PCB CONTAMINATED OIL AT CHEVROLET-BAY CITY

Chevrolet Motor Division, General Motors Corporation, is cooperating with the U.S. Environmental Protection Agency (EPA) in a test program to confirm that waste oil containing small amounts of the toxic fire retardant chemical, polychlorinated biphenyl (PCB) can be burned effectively and safely in high efficiency industrial boilers.

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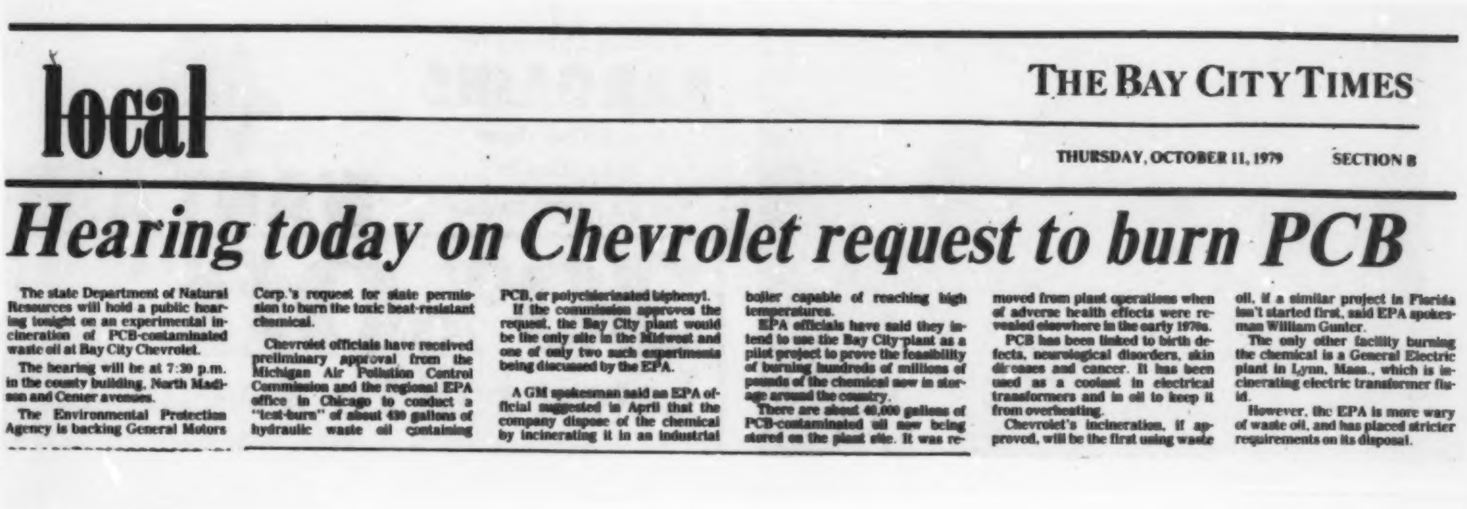

local

THE BAY CITY TIMES

THURSDAY, OCTOBER 11, 1979 SECTION B

Hearing today on Chevrolet request to burn PCB

The state Department of Natural Resources will hold a public hearing tonight on an experimental incineration of PCB-contaminated waste oil at Bay City Chevrolet.

The hearing will be at 7:30 p.m. in the county building, North Madison and Center avenues.

The Environmental Protection Agency is backing General Motors Corp.'s request for state permission to burn the toxic heat-resistant chemical.

Chevrolet officials have received preliminary approval from the Michigan Air Pollution Control Commission and the regional EPA office in Chicago to conduct a "test-burn" of about 430 gallons of hydraulic waste oil containing PCB, or polychlorinated biphenyl.

If the commission approves the request, the Bay City plant would be the only site in the Midwest and one of only two such experiments being discussed by the EPA.

A GM spokesman said an EPA official suggested in April that the company dispose of the chemical by incinerating it in an industrial boiler capable of reaching high temperatures.

EPA officials have said they intend to use the Bay City plant as a pilot project to prove the feasibility of burning hundreds of millions of pounds of the chemical now in storage around the country.

There are about 40,000 gallons of PCB-contaminated oil now being stored on the plant site. It was removed from plant operations when of adverse health effects were revealed elsewhere in the early 1970s.

PCB has been linked to birth defects, neurological disorders, skin diseases and cancer. It has been used as a coolant in electrical transformers and in oil to keep it from overheating.

Chevrolet's incineration, if approved, will be the first using waste oil, if a similar project in Florida isn't started first, said EPA spokesman William Gunter.

The only other facility burning the chemical is a General Electric plant in Lynn, Mass., which is incinerating electric transformer fluid.

However, the EPA is more wary of waste oil, and has placed stricter requirements on its disposal.

ok

OK

The Detroit News Oct/11/1979 B

Bay City proposal

GM wants to burn PCB at Chevy site

By PAT SHELLENBARGER
News Staff Writer

LANSING — The General Motors Corp. is seeking state permission to burn off and rid its Bay City Chevrolet plant of a chemical that has been banned by the federal government as harmful to humans and virtually indestructable in nature. U.S. environmental officials are backing the request.

If the state's Air Pollution Control Commission approves, the plant would be the only site in the Midwest and one of only four in the country authorized to burn the chemical coolant and fire retardant polychlorinated biphenyl, commonly known as PCB.

High temperature incineration is the only safe and reliable way to dispose of the chemical, according to state and federal pollution officials. But the GM proposal already is facing opposition from Chevrolet plant workers and residents of the area.

'. . . incineration is the only safe and reliable way to dispose of the (PCB).'

THE AIR POLLUTION Control Commission — a panel charged with keeping the state's air clean — will hold a public hearing on the issue at 7:30 tonight in the Bay City city commission chambers. The commission is to vote when it meets Monday and Tuesday in Muskegon.

A GM spokesman said the idea to burn PCB came from federal Environmental Protection Agency officials who asked the company in April if it had an industrial boiler capable of reaching the high temperature necessary to destroy the chemical.

Manufacture and use of PCB's were banned by the environmental agency earlier this year after laboratory tests identified them as dangerous to humans and animals.

The chemical is believed to cause birth defects, neurological disorders, skin diseases and cancer.

ENVIRONMENTAL agency officials said they intend to use the Bay City plant as a "pilot project" to prove the feasibility of burning hundreds of millions of pounds of the banned chemical in storage around the country.

John Vial, a state Department of Natural Resources air-quality engineer, said that, if the commission approves, Chevrolet first would conduct closely monitored "test burns" over a three-day period. The tests would be conducted by a private testing firm under the supervision of the environmental agency and Department of Natural Resources, a company spokesman said.

If the tests show that at least 99.9 percent of the chemical is destroyed, GM then would ask the commission for a long-term permit to burn the compound.

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GM proposes to burn off PCB

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Chevrolet's PCB is contained in 20,000 gallons of waste oil stored in tanks on the plant grounds. Vial said the oil, with between 20 and 500 parts per million PCB, would be diluted 10 times with fuel oil before being injected into a boiler flame burning at 2,300 degrees Fahrenheit.

EARLY CALCULATIONS are that at least 99.9 percent of the PCB would be safely burned, with the rest entering the atmosphere through a smokestack, state officials said. A report prepared by the Air Pollution Control Commission staff said the impact of such a small emission into the air would be "negligible."

An estimated 1.25 billion pounds of PCB's have been used by U.S. industries since 1929, the environmental agency said, with about 440 million pounds finding their way into the environment.

They have contaminated fish in the Great Lakes, been detected in the Antarctic ice sheet and are believed to be found in small traces in the body fat of nearly every resident of the United States. Like most of the state's water, the Saginaw River, adjacent to the Bay City plant, has been found to contain small amounts of the chemical.

PCB is similar in makeup to PBB (polybrominated byphenyl) which entered Michigan's food chain after it was accidentally mixed with cattle feed in 1973.

LIKE PBB, PCB is a fire retardant commonly used as insulating fluid in heavy-duty electrical equipment. GM had mixed the compound with hydraulic fluid used in machinery at a number of its plants including Bay City.

Until 1977, the company burned the contaminated waste oil in its Bay City boilers used to heat and provide steam for the parts plant. The burning was stopped after a state law was passed requiring approval by the Air Pollution Control Commission.

A GM spokesman said that, though PCB is no longer used, it adhheres stubbornly to the machinery and still appears in the waste oil each time the hydraulic fluid is changed.

As a result, the burning could continue for a number of years until the contamination is reduced to "safe" levels, state officials said.

THE ONLY OTHER Michigan plant ever authorized to incinerate PCB was the Peerless Cement Co. in Detroit's Delray section. It burned the chemical for a few months in 1977 until public pressure forced it to stop.

BECAUSE OF ILLEGIBLE ORIGINAL THIS PAGE HAS BEEN RETYPED FOR CLARIFICATION

The Flint Journal, Thursday, October 11, 1979

EPA backs request to burn toxic PCB

LANSING (UPI) - The Environmental Protection Agency is backing General Motors request for state permission to burn the toxic fire retardant chemical PCB at its Chevrolet plant in Bay City.

The state Air Pollution Control Commission will hold a public hearing on the request tonight in Bay City. It is expected to vote on the issue during its two-day meeting in Muskegon beginning Monday.

If the commission approves the request, the Bay City plant would be the only site in the Midwest and one of only four in the country authorized to burn PCB-polychlorinated biphenyl.

A GM spokesman said an EPA official suggested in April that the automaker dispose of the chemical by incinerating it in an industrial boiler capable of reaching high temperatures.

EPA officials have said they intend to use the Bay City plant as a pilot project to prove the feasibility of burning hundreds of millions of pounds of the chemical now in storage around the country.

There are 38,000 gallons of waste oil containing between 50 and 500 parts of PCB per million stored in tanks on the Chevrolet plant grounds. The chemical is similar to PBB, the fire retardant responsible for Michigan's cattle feed disaster.

PCB, certified as harmful to humans and virtually indestructible in nature, in the past was used as a coolant and fire retardant. The EPA banned the use of the chemical earlier this year.

PCB has been linked to birth defects, neurological disorders, skin diseases and cancer.

Although GM and the EPA are ready to go ahead with the incineration project, many Chevrolet workers and residents around the plant are prepared to oppose it.

John Vial, an air quality engineer with the state Department of Natural Resources, said closely monitored "test-burns" would be done over a three-day period at the Bay City plant if the commission approves.

The tests would be conducted by a private testing firm under the supervision of the EPA and the DNR, a GM spokesman said. If the tests show that at least 99.9 percent of the chemical is destroyed, GM would then ask the commission for a long-term

OK

TUESDAY, OCTOBER 16, 1979

PCB burn decision delayed

The Michigan Air Pollution Control Commission will delay a decision on a proposed test incineration by Bay City Chevrolet of the cancer-causing chemical PCB until Nov. 20 because of questions raised at a hearing in Bay City Oct. 11, commission member John Vial said today.

The commission had intended to make a final decision on whether to grant a permit for the experiment after its monthly meeting today in Muskegon Heights.

But Vial said questions raised at last week's hearing have forced commission members to consider changing the permit process to allow more public input.

The commission originally had planned to allow Chevrolet to conduct an initial test-burn of waste oil containing the toxic heat resistant chemical polychlorinated biphenyl, then decide whether to let the company burn additional waste oil, without necessarily holding public hearings in between.

But now the commission probably will hold more public hearings after the test burn, Vial said.

"It was our intent when we issued this permit to analyze the results of the test burn ourselves, but now the results of the test will be subject to another public comment period," Vial said.

About 100 persons attended the Bay City hearing on the incineration proposal.

Chevrolet applied in July for a permit to incinerate about 40,000 gallons of PCB-contaminated waste oil. The test burn will dispose of about 430 gallons of the oil. The rest is being stored on the plant site.

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Tuesday, October 16, 1979

GROUP CONDEMNS PCB BURNING

LANSING-(UPI)

A proposed state permit allowing General Motors to burn highly toxic PCB at its Chevrolet plant in Bay City was criticized yesterday by the American Lung Association.

The state Air Pollution Control Commision was to study the matter today but no final decision is expected for several weeks.

The association said it supports the concept of a limited "verification burn" of PCB contaminated oils, but believes the proposed permit contains too few safeguards.

"We believe that a limited short-term verification burn of PCB waste oils wouldn't pose a threat to the health and safety of Bay City residents and it would yield much useful information if conducted properly, the association said.

However, it said, the proposed permit "allows for continuous PCB waste burning on an ongoing basis after the verification burn under certain conditions."

Any continuous PCB burning operation "should be under an entirely separate permit," the association said.

PCB is a chemical fire retardant commonly used as an insulating fluid in heavy-duty electrical equipment.

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MICHIGAN PRESS READING SERVICE

11-7-79

POLLUTION EXPERTS TO FIELD TEST QUESTIONS

The Michigan Air Pollution Control Commission will attend Monday's City Commission meeting to answer questions from elected officials and citizens about a planned test incineration of waste oil conterminated with PCB at the Bay City Chevrolet plant.

John Vial, commission member, said the commission is attending the meeting because of concern raised by city officials last month about the effects of the incineration on local residents.

The Bay City Commission requested that the air pollution control commission, a branch of the Department of Natural Resources, delay any final decision on the burn until at least mid-November.

The air pollution commission is scheduled to make its decision at its monthly meeting Nov. 20.

Bay City Chevrolet has applied for a permit to burn about 430 gallons of the oil in a special test to see if it can be safely incinerated.

10-16-79

PCB disposal

LANSING (UPI) - The American Lung Association of Michigan Monday criticized a proposed state permit allowing General Motors Corp. to burn highly toxic PCB at its Chevrolet division plant in Bay City.

The state Air Pollution Control Commission was to study the matter Tuesday but no final decision was expected at that time.

The association said it supports the concept of a limited "verification burn" of PCB contaminated oils, but believes the proposed permit contains too few safeguards.

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10-9-79

AIR COMMISSION TO HEAR PCB INCINERATION PROPOSAL

Lansing - Testimony from two public hearings on a proposed PCB incineration project will be considered by the Michigan Air Pollution Commission October 15 and 16, during its monthly meeting at Holly's at the Inn, 3450 Hoyt Street, Muskegon Heights. The sessions will begin at 7:30 p.m. October 15 and continue the following day beginning at 9 a.m.

The Commission also will receive and consider public statements on proposed consent orders which provide for major pollution cleanups at the Textron CWC Castings facilities in Muskegon and South Haven, General Motors Buick Motor Divicion plant in Flint, and the Martin-Marietts Corporation Manister plant.

Three companies are seeking extensions of sulphur dioxide compliance programs from the Commission Northern Michigan Electric Cooperative of Boyne City is seeking conceptual approval, Union Camp Corporation of Monroe is seeking final approval of a consent order, and Consumers Power Company at West Olive is seeking an amendment to a recently approved compliance program.

10-16-79

ALA against PCB burn

LANSING (UPI)-The American Lung Association of Michigan Monday criticized a proposed state permit allowing General Motors Corp. to burn highly toxic PCB at its Chevrolet division plant in Bay City.

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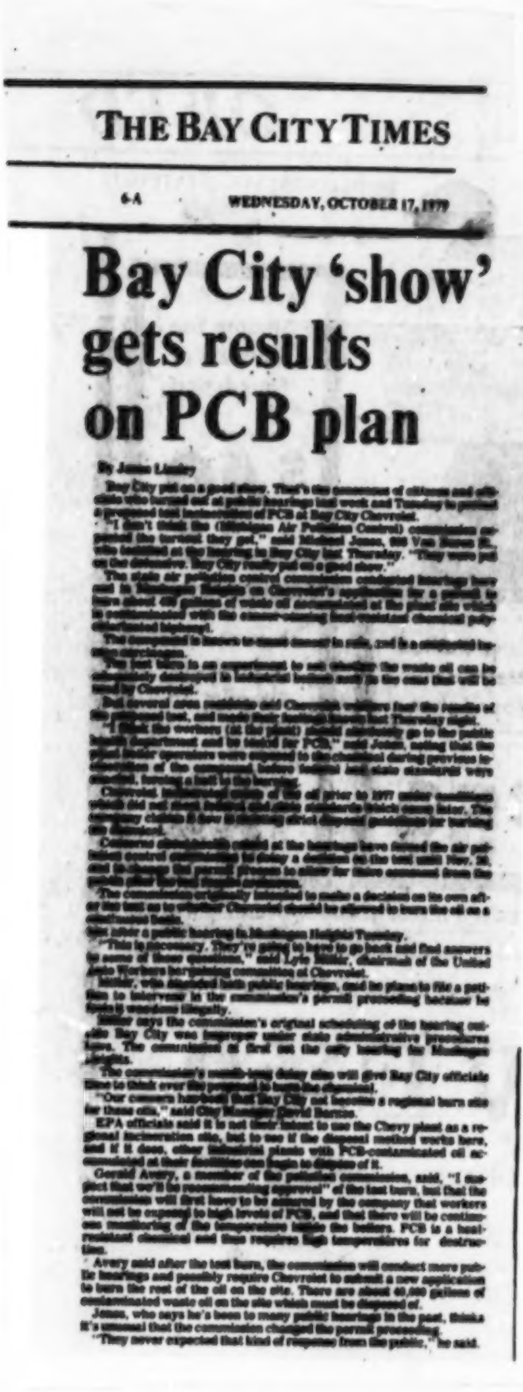

THE BAY CITY TIMES

6-A WEDNESDAY, OCTOBER 17, 1979

Bay City 'show' gets results on PCB plan

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Oct-17-79

BURNING OF PCB OIL DELAYED

spacing?

MUSKEGON HEIGHTS, Mich (AP) -Before state officials will allow the burning of PCB-contaminated oil, the problem of the suspected cancer causer's buildup in humans "must be addressed," a state official says.

Several questions still face the Michigan Air Pollution Control Commission, which is considering an application for a test burn by General Motors Corp. at its Bay City plant, said Delbert Rector, the commission's executive secretary.

"We don't have all the answers yet," Rector said at a public hearing Tuesday in Muskegon Heights, "but we hope to have these issues resolved by next month's meeting."

no spacing

PCB, or polychlorinated biphenyl, is a highly toxic chemical used in heat insulation systems. It is known to cause cancer in laboratory animals and is suspected to cause cancer in humans, according to Jerry Avery of the Department of Natural Resources air quality division.

Insulation in transformers and other equipment of the Bay City Chevrolet Motors Division plant contain PCB. Oil circulated through that equipment became contaminated and for approximately two years, the oil was burned in a boiler at the plant.

In September 1977, the commission ordered GM to stop the burning because of the release of PCBs into the air. Since the commission order, GM has stored 38000 gallons of contaminated oil at the site.

38000

GM has applied for a permit to conduct three six-hour test burns at the Bay City plant. The company wants to burn the contaminated oil after it has been diluted with fuel oil. The PCB levels of the oil and the resulting emissions from the boiler's stack would be carefully monitored, one GM official said.

"All we're trying to do is come up with a safe and more cost effective alternative to handle PCB," said Anthony Fisher; a scientist in GM's air pollution control department.

Currently, oil and other material contaminated by PCB has to be buried in landfills or burned in a special incinerator. Both methods are extremely costly Fisher said.

"I don't want to see that plant closed down," said Lyle Miller, chairman of the United Auto Workers bargaining committee at the plant. "That plant is a living for close to 4,000 people. We just want to know whether or not destruction (of the PCBs) will be 99.9 percent, like the state wants."

"We are facing several issues that we need to take a look at before next month's meeting." Rector said. "We need to know what temperature the boiler is able to maintain and what will be done with the waste inside, whether residuals would stay in the boiler that workers will be exposed to.

the

"But we have to answer in a better fashion the bio-accumulation of PCB. We have to learn how the body handles it and its potential risk to the community."

"Bio-accumulation" means that the human body cannot rid itself of the chemical after exposure, Avery explained. Consequently, continued exposure causes that chemical to build up, he said.

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Oct-17-79

STATE DELAYS TEST-BURNING OF PCB

MUSKEGON HEIGHTS-(AP)-The problem of PCB buildup in humans "must be addressed" before oil contaminated by the suspected cancer causer can be burned, a state official said yesterday.

Several questions must be answered before the Michigan Air Pollution Control Commission will approve a test burn by General Motors Corp. at its Bay City plant, said Delbert Rector, the commission's executive secretary.

"We don't have all the answers yet," Rector said at a public hearing in Muskegon Heights, "but we hope to have these issues resolved by next month's meeting.

⑩ "We have to answer in a better fashion the bio-accumulation of PCB. We have to learn how the body handles it and its potential risk to the community."

"Bio-accumulation" means that the human body cannot rid itself of the chemical after exposure. Consequently, continued exposure causes the chemical to build up. PCB, or polychlorinated biphenyl, is a highly toxic chemical used in heat insulation systems. It is known to cause cancer in laboratory animals and is suspected of causing cancer in humans.

Insulation in transformers and other equipment of the Bay City Chevrolet Motors Division plant contain PCB. Oil circulated through that equipment became contaminated and for approximately two years, the oil was burned in a boiler at the plant.

In September, 1977, the commission ordered GM to stop the burning because of the release of PCB's into the air. Since the commission order, GM has stored 38,000 gallons of contaminated oil at the site.

GM has applied for a permit to conduct three six-hour test burns at the Bay City plant. The company wants to burn the contaminated oil after it has been diluted with fuel oil.

Currently, oil and other material contaminated by PCB has to be buried in landfills or burned in a special incinerator.

SPACE

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Oct-17-79

STATE SEEKING ANSWERS
BEFORE PBB IS BURNED

state

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facing

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Oct-17-79

PCB BUILDUP AT ISSUE IN GM BID TO BURN OIL

MUSKEGON HEIGHTS (AP)- Before state officials will allow the burning of PCB-contaminated oil, the problem of the suspected cancer causer's buildup in humans "must be addressed," a state official says.

Several questions still face the Michigan Air Pollution Control Commission, which is considering an application for a test burn by General Motors Corp. at its Bay City plant, said Delbert Rector, the commission's executive secretary.

"We don't have all the answers yet," Rector said at a public hearing Tuesday in Muskegon Heights, "but we hope to have these issues resolved by next month's meeting."

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In September 1977, the commission ordered GM to stop the burning because of the release of PCBs into the air. Since the commission order, GM has stored 38,000 gallons of contaminated oil at the site.

GM has applied for a permit to conduct three six-hour test burns at the Bay City plant.

Thursday, November 1, 1979 - THE DETROIT NEWS

PCB's Are Not Easy To Dump

By TED DOUGLAS
News Editorial Writer

Members of the Michigan Air Pollution Control Commission (MAPCC) face a serious technical and moral dilemma: how to safely dispose of PCB materials stored at a Bay City plant of General Motors. The commissioners are not to be envied the decision they face.

Douglas

PCB's (polychlorinated biphenyls) are used as an additive for coolant oils used in electrical transformers and machinery hydraulic fluids, where heat is a problem.

PCB's have been in use for a good many years and were thought to be innocent. However, science now tells us that the the chemical causes cancer in laboratory animals, and may cause cancer in humans.

Further, PCB's have a tendency to "cling." A hydraulic system can be purged of PCB-laden oil and refilled with fresh oil several times, yet traces of PCB can still be found. The stuff is difficult to flush.

THERE ARE DANGERS in storing the material. Over time, barrels may corrode and leak; or containers might be broached in a natural disaster. Federal law seeks to prevent the latter event by stipulating that storage must be on ground above the 100-year flood plane.

The Environmental Protection Agency (EPA), which has a reputation for toughness in these matters, recommends three disposal methods:

1. Burial in a toxic chemical disposal site.

2. Incineration in a high-efficiency industrial boiler if the content is between 50 and 500 parts per million in oil.

3. Burning in an expensive special incinerator if the concentration is greater than 500 parts per million. Michigan has no such incinerator.

GM applied for a permit for three six-hour test burns in its high efficiency boiler, which meets the requirements of the EPA: The material would burn at 2,912 degrees Fahrenheit, with no less than 3 percent excess oxygen in the stack to guarantee full oxidation of the material.

The fluids containing PCB would be diluted with the fuel oil that is fed to the boiler. Using this method, the EPA says, 99.9 percent of the chemical would be destroyed, in the GM case.

The Michigan commission must decide whether a test burn is to be allowed. It balked at its last meeting and an official said there are still questions that must be answered: like the specific and sustained operating temperature of GM's boiler, as well as some medical information on bioaccumulation; and rates of buildup of the chemical in humans.

Even if EPA is satisfied with boiler incineration, the commission has lingering and persistent doubts.

GM, sensitive to this, has not asked to dispose of all 38,000 gallons at once but, rather, for a test burn that can be strictly monitored and the results reviewed.

The alternative is to mix the PCB-laden fluids with soils (they tend to cling to dirt) and bury them in a pit with the right kind of bottom and sides, preferably impermeable hard pan clay. Even with the utmost care, it is difficult to guarantee that the material will never, ever get into the water table.

THE ISSUE comes down to two choices: do nothing or try something. There are risks in both. Long-term storage can result in accidents. Pit disposal and incineration carry no 100 percent guarantee that 100 percent of the chemical will disappear forever.

The commission must try something, or the problem will never be solved. Boiler incineration seems to offer the best technology with the least risk. One small test burn, carefully monitored, will disclose pretty quickly whether the scientists who favor the method are right and whether it is safe to go further.

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November 1, 1979

RESPONSE TO NEWS MEDIA INQUIRIES ON THE MEDICAL EXAMINATIONS OF EMPLOYES AT CHEVROLET'S BAY CITY PLANT, SITE OF THE PROPOSED PCB TEST BURN

In connection with the proposed test burning of waste oil contaminated with small amounts of the chemical PCB (polychlorinated biphenyl), the Chevrolet Bay City plant is performing medical examinations on 20 plant employes this week. The Michigan Department of Health believes that most people in the state carry minute levels of PCBs. There are many sources of PCBs. They are found in fish from Saginaw Bay for example, and in water supplies. The purpose of the medical exams, which are being conducted at the employes' request, is to establish what levels, if any, of PCB they may be carrying.

Thirteen of the employes being tested comprise the workforce in the plant's powerhouse, where the proposed test burn would take place. The other seven employes will be a "control group" and were chosen from elsewhere in the plant. The test group includes both hourly and salaried employes.

Prior to the tests, all involved employes were briefed on the nature of the examination, and advised that their participation is voluntary.

The examinations are being performed by Dr. Thomas A. Hockman, M.D., the plant's medical director, who is an internist. The exams include a medical history, and a complete physical examination, an electrocardiogram, pulmonary function test, and an 18-phase serum chemistry analysis. The general blood analysis will be performed by a private laboratory. The analysis for possible PCB content will be performed by an independent medical laboratory and by the Michigan Department of Health Laboratory.

Results of the tests are expected to be available prior to the November 20th meeting in Lansing of the Michigan Air Pollution Control Commission, where the proposed test-burn permit application will be reviewed.

(3 corrections

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Q & A

1. What about testing area citizens for PCBs?

Answer: Members of the plant's control group are residents of the Bay City area. Their tests will establish background levels, so additional tests are not believed necessary.

2. Why aren't you doing fat biopsies on the employes?

Answer: If no PCBs are found, there will be no need for fat biopsies. If we find PCB in the blood analysis, we are prepared to have fat biopsies done on employes who are willing. Such tests, if required, will involve minor surgery and would be performed with the assistance of an outside surgical clinic.

3. Will you do a second set of physical exams after a PCB oil test burn?

Answer: It is our conviction, and that of the EPA and the DNR, that the sophisticated instrumentation to be used during a test burn will demonstrate emission of nearly unmeasurable levels of PCB, so follow-up medical tests are not planned at this time.

4. Is this the first time GM employes have been given such medical tests?

Answer: No. GM maintains outstanding industrial hygiene and preventive medical resources. Tests have been given from time to time in other GM plant locations where workers have been exposed to material such as lead, asbestos and beryllium.

#####################

Prepared by: J. D. Hudgens, Chevrolet Public Relations, 8-446-1565

Reviewed by: Robert Phillips, Anthony Fisher, Dr. R. Miller, Robert Clark, Eugene Hartwig, Fred Fromm

THE BAY CITY TIMES

BAY CITY, MICHIGAN FRIDAY, NOVEMBER 2, 1979

Bay City Chevrolet to test workers for PCB poisoning

By Jeann Linsley

Workers who three years ago burned large quantities of waste oil contaminated with PCB at the Bay City Chevrolet plant will be tested for the presence of the heat-resistant chemical in their bodies, General Motors officials said.

David Hudgens, GM spokesman, said the company will supervise and pay for the tests.

"We're doing this to put (the workers') minds at ease," Hudgens said. "We don't expect there will be any alarming findings."

PCB, polychlorinated biphenyl, is known to cause cancer in laboratory animals and is thought to cause cancer in humans.

The chemical was used widely in industry as an agent to prevent overheating in industrial oils and electric equipment. Its use was banned by the Environmental Protection Agency earlier this year, but large quantities of waste oil containing the compound were incinerated at the Chevrolet plant before the standards went into effect.

GM officials and the EPA are planning an experimental "test-burn" of the remaining oil sometime before the end of the year.

Hudgens said 13 of the workers to be tested will be from crews which participated in the previous incineration, and seven "control" workers, from other parts of the plant will be used as a comparison.

The tests, being done at the request of the workers, will include a complete medical history and physical examination, an electrocardiogram, analyses of pulmonary functions and blood tests.

Blood samples will be analyzed by independent laboratories in Wisconsin and Oregon, and by the Michigan Department of Public Health, Hudgens said.

If the tests reveal unusually high PCB levels, he said, the company will run more extensive tests to confirm the presence of the chemical.

Andre Day, one of the plant's boiler operators, said he is satisfied with the company's decision to

perform the tests, "but I'm still opposed to the test-burn."

"There's still a lot of unanswered questions. They really don't know what the tolerance level is. My biggest concern is about the effects on unborn children."

He said workers "are going to demand" that GM run more medical tests after the proposed experimental burn to see if the incineration resulted in any further contamination.

Hudgens said GM does not plan to conduct tests after the experimental burn.

"We feel that the sophisticated instrumentation (on special burners in the plant) will keep PCB levels very low," he said.

At two public hearings on the test-burn last month, several individuals questioned the EPA and the Michigan Air Pollution Control Commission about methods they will use to monitor amounts of PCB going into the air after combustion. EPA officials claim that levels of PCB escaping into the air will be less than one percent.

A final decision on the test-burn will be made by the state air pollution commission at a special meeting in Lansing on Nov. 20.

local

THE BAY CITY TIMES

6-A MONDAY, NOVEMBER 5, 1979

Canadian officials to view Bay City Chevrolet's PCB burn

By Jeane Lindsey

The Canadian government is interested in a proposed test-burn of PCB at Bay City Chevrolet, and may send environmental officials to observe the incineration, according to a spokesman for Canada's federal Environmental Protection Service.

The government's interest in the Bay City experiment has more to do with public acceptance of PCB disposal than with any advanced technology, said Peter Mazerolle, of the EPS's waste management division in Ottawa.

"There is a need in Canada as well as in the United States to get around the public acceptance problem. If success is achieved in one area, it will be that much easier to dispose of PCB in other areas," Mazerolle said.

Ironically, the Canadian government already has demonstrated what it believes is a successful method of burning PCB, Mazerolle said, but the public hasn't accepted it.

The government and a private cement manufacturer conducted a test incineration of fluids contaminated with PCB, or polychlorinated biphenyl, about five years ago, he said.

While Mazerolle said the test, conducted in the cement plant in a suburb of Toronto, was successful in destroying the chemical contaminant, "there was a great public outcry," and subsequent public hearings were "a disaster."

Bay City Chevrolet plans to burn about 420 gallons of hydraulic waste oil containing PCB, in a special test to see if the compound can be destroyed.

The contaminated oil will be diluted during the test so PCB levels do not exceed Environmental Protection Agency standards of 500 parts per million, and temperatures inside the boilers will be high enough to destroy all but a tiny fraction of the chemical, officials claim.

Several questions have been raised, however, about methods GM plans to use to monitor amounts of PCB going into the air, and how it will measure PCB levels in the oil before it is incinerated. PCB has caused birth defects and cancer in laboratory animals, and is thought to cause cancer and skin and liver ailments in humans. Its use as a cooling agent in electrical transforming equipment and hydraulic oils has been so widespread that private manufacturers and the government have been at a loss to dispose of it safely since its adverse health effects have been revealed.

The EPA was forced to lower its standards for burning the chemical because industry said it would be too costly.

But even under present EPA regulations, it is estimated it will cost electric utilities between $3 and $17 million a year to dispose of PCB-contaminated mineral oil in transformers and capacitors.

"There is no known technological problem," Mazerolle said. "The problem is the uncertainty of the people. They don't want it transported in the their neighborhood and they don't want it burned in their neighborhood."

A final decision on GM test-burn is expected on Nov. 20, at a meeting of the Michigan Air Pollution Control Commission.

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Bay City Times Saturday 11-10-79

PCB test burn should concern the community

People of Bay City and surrounding areas:

I'm sure everyone is aware of the PCB test burn Bay City Chevrolet is planning to carry out, but is anyone alarmed by this project? I am, and I'm willing to let my feelings be heard at a City Commission meeting. Will you do the same?

I have called city officials, offices and commissioners on the subject. It was satisfied when promised information from the Department of Natural Resources research on the PCB chemical and also data from certain public officials. It has been several weeks and no information has been sent.

I know PCB is proven to be cancer-causing in animals. It is suspected to cause birth defects in humans! Suspected? If this suspicion is proven correct after the chemical is burned and released in our air, Bay City and area residents may then see their children and grandchildren inflicted with birth defects, and may wish they would have banned the program from the start. This is the "Start," Bay City! Let's stop it now!!

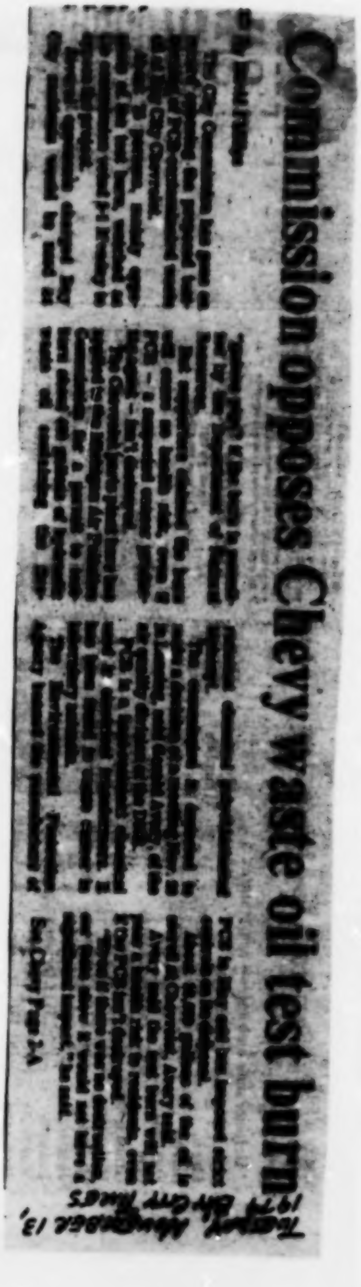
Another problem which could become reality is the transporting of this chemical. If this test burn is done here, industry from miles around will send their PCB waste here by trucks and perhaps railroad cars. If this chemical should leak or the transporting vehicles overturn, think of the danger to our immediate environment and health!

There will be an informal meeting at the Commission meeting Monday at 7:30 p.m. at the Community Center. Let's all take part in the welfare of our own bodies and that of our future generations.

There is power in numbers. Maybe the Bay City area people should vote on this test ban proposal. That would seem to me a very democratic way to take care of this problem.

Come on, Bay City – get involved!!

Susan Majeske,
Bay City



Commission opposes Chevy waste oil test burn

By [illegible] Phillips

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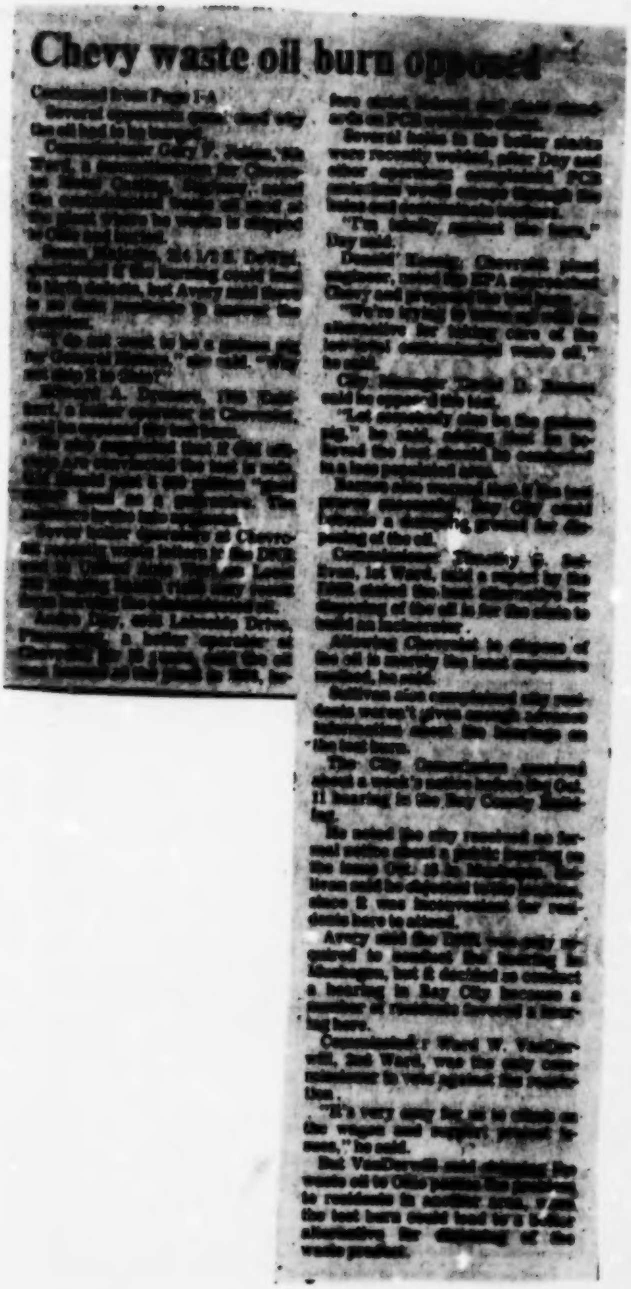
See Chevy Page 2-A

Tuesday, November 13, 1979 Bay City Times



Chevy waste oil burn opposed

Continued from Page 1-A

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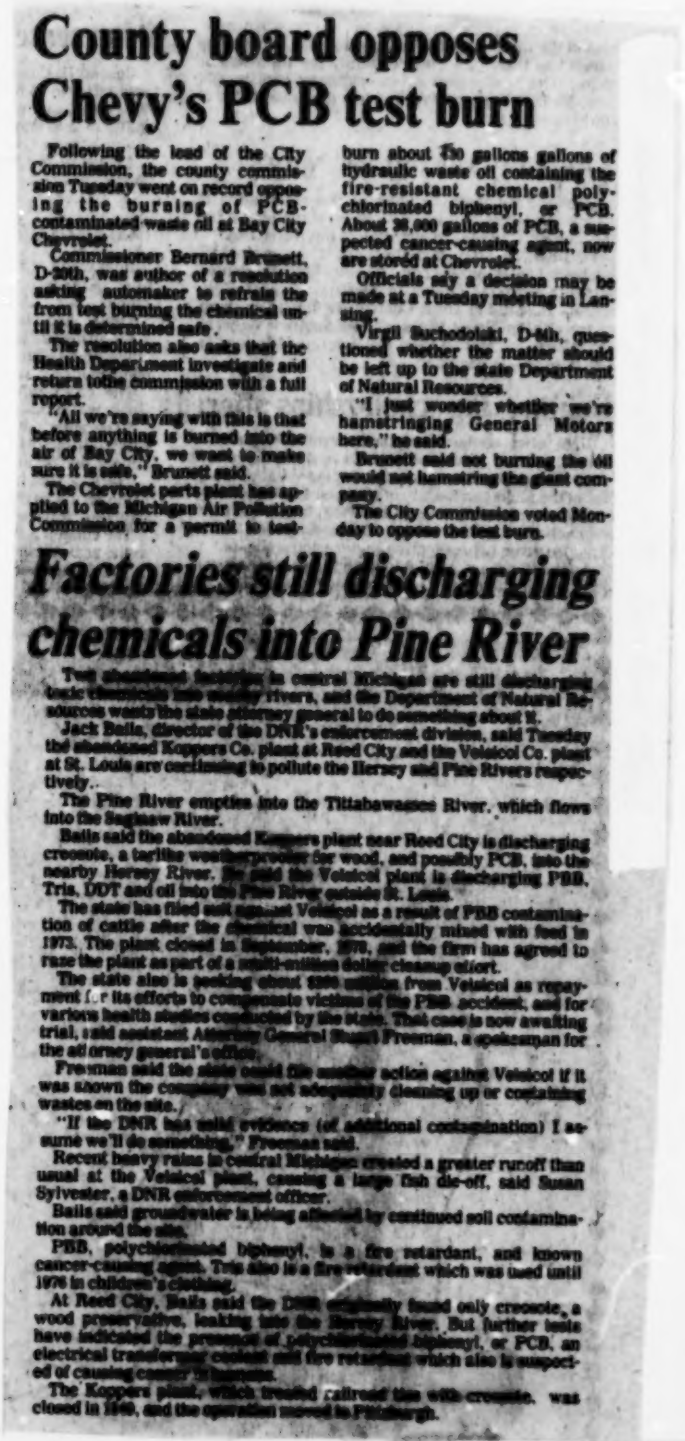
BAY CITY TIMES Wednesday, November 14, 1979



County board opposes Chevy's PCB test burn

Following the lead of the City Commission, the county commission Tuesday went on record opposing the burning of PCB-contaminated waste oil at Bay City Chevrolet.

Commissioner Bernard Brunett, D-20th, was author of a resolution asking automaker to refrain the from test burning the chemical until it is determined safe.

The resolution also asks that the Health Department investigate and return tothe commission with a full report.

"All we're saying with this is that before anything is burned into the air of Bay City, we want to make sure it is safe," Brunett said.

The Chevrolet parts plant has applied to the Michigan Air Pollution Commission for a permit to test-burn about [illegible] gallons gallons of hydraulic waste oil containing the fire-resistant chemical polychlorinated biphenyl, or PCB. About 38,000 gallons of PCB, a suspected cancer-causing agent, now are storéd at Chevrolet.

Officials say a decision may be made at a Tuesday meeting in Lansing.

Virgil Suchodolski, D-8th, questioned whether the matter should be left up to the state Department of Natural Resources.

"I just wonder whether we're hamstringing General Motors here," he said.

Brunett said not burning the oil would not hamstring the giant company.

The City Commission voted Monday to oppose the test burn.

Factories still discharging chemicals into Pine River

Two abandoned factories in central Michigan are still discharging toxic chemicals into nearby rivers, and the Department of Natural Resources wants the state attorney general to do something about it.

Jack Bails, director of the DNR's enforcement division, said Tuesday the abandoned Koppers Co. plant at Reed City and the Velsicol Co. plant at St. Louis are continuing to pollute the Hersey and Pine Rivers respectively.

The Pine River empties into the Tittabawassee River, which flows into the Saginaw River.

Bails said the abandoned Koppers plant near Reed City is discharging creosote, a tarlike weatherproofer for wood, and possibly PCB, into the nearby Hersey River. He said the Velsicol plant is discharging PBB, Tris, DDT and oil into the Pine River outside St. Louis.

The state has filed suit against Velsicol as a result of PBB contamination of cattle after the chemical was accidentally mixed with feed in 1973. The plant closed in September, 1978, and the firm has agreed to raze the plant as part of a multi-million dollar cleanup effort.

The state also is seeking about [illegible] million from Velsicol as repayment for its efforts to compensate victims of the PBB accident, and for various health studies conducted by the state. That case is now awaiting trial, said assistant Attorney General Stuart Freeman, a spokesman for the attorney general's office.

Freeman said the state could file another action against Velsicol if it was shown the company was not adequately cleaning up or containing wastes on the site.

"If the DNR has valid evidence (of additional contamination) I assume we'll do something," Freeman said.

Recent heavy rains in central Michigan created a greater runoff than usual at the Velsicol plant, causing a large fish die-off, said Susan Sylvester, a DNR enforcement officer.

Bails said groundwater is being affected by continued soil contamination around the site.

PBB, polychlorinated biphenyl, is a fire retardant, and known cancer-causing agent. Tris also is a fire retardant which was used until 1976 in children's clothing.

At Reed City, Bails said the DNR originally found only creosote, a wood preservative, leaking into the Hersey River. But further tests have indicated the presence of polychlorinated biphenyl, or PCB, an electrical transformer coolant and fire retardant which also is suspected of causing cancer in humans.

The Koppers plant, which treated railroad ties with creosote, was closed in 1969, and the operation moved to Pittsburgh.

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Friday, November 16, 1979
Bay City Times

EXPECT MONTH'S DELAY FOR PCB BURN HERE

By Jeann Linsley

The Michigan Air Pollution Control Commission is expected to delay for one month a decision to burn PCB at Bay City Chevrolet, according to a commission staff member.

John Vial, a member of the commission staff, said the staff had planned to recommend approval of the test at the full commission meeting in Lansing next Tuesday, but that it now will recommend a delay until the Dec. 18 meeting because of a request by General Motors Corp. officials.

General Motors spokesman David Hudgens said the company wants additional time to review results of medical tests on workers and to clear up what the firm feels are "misunderstandings" on the part of city officials.

The workers being tested participated in burning waste oil contaminated with PCB, polychlorinated biphenyl, before federal regulations on disposal of the chemical went into effect.

Hudgens said the company views the test results as an "important ingredient" of the commission's review of the proposed test-burn, in which about 430 gallons would be destroyed in industrial boilers.

The results of the blood samples could have an impact on the commission's ultimate decision as to whether burning the oil poses a hazard to workers and residents living near the site.

"We also would like an opportunity to clear up some of the misunderstandings in the community, and the city commission will be a major arena for this," Hudgens said.

The city commission voted 5-1 Monday to oppose the test.

"We expect to go back to the city commission and discuss the matter further," Hudgens said.

Vial said the air pollution control commission staff will go ahead and make its favorable recommendation to the full 11-member commission at the meeting Tuesday in Lansing.

GM had expected to receive results from the blood tests before Nov. 20, but Hudgens said results haven't been obtained yet from the independent labs in Wisconsin and Oregon.

He said GM officials will request the month-long delay at the meeting next Tuesday.

Bay City Commissioner Timothy J. Sullivan said he plans to arrange a meeting with officials from the EPA, DNR, and Chevrolet to discuss the test.

City manager David Barnes has authority to seek a legal injunction prohibiting the test, but Sulivan and Barnes said they aren't sure such a strong measure is necessary at this time.

Chevrolet is storing about 40,000 gallons of PCB-contaminated waste oil on the plant site. The chemical was used widely in industry as an electrical tranformer coolant and as an agent to pervent hydraulic oil from overheating.

It is known to cause cancer in laboratory animals and is a suspected human carcinogen.

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Tuesday, November 20, 1979 Bay City Times

Delay expected in decision on PCB burn

The Michigan Air Pollution Control Commission today was expected to delay until at least Dec. 18 a decision on a proposed test-burn of PCB-contaminated oil at Bay City Chevrolet.

Officials of General Motors have requested the delay because they haven't received results of medical tests on plant workers who incinerated the waste oil prior to 1976.

GM officials also say they want to clear up "misunderstandings" on the part of Bay City officials about the test, in which about 430 gallons of waste oil would be burned.

← [illegible] Bay City

Arthur Bloomer, of the Michigan Department of Public Health, said results of the medical tests should be available this week. GM also is awaiting medical lab tests from private labs in Wisconsin and Oregon.

local

THE BAY CITY TIMES

WEDNESDAY, NOVEMBER 21, 1979 6-A

PCB TEST-BURN PROPOSAL:

GM gets month to sell city on plan

LANSING, Mich. (AP) — Representatives from General Motors Corp. will get another month to try to sell Bay City area residents on their planned test-burn of oil contaminated with the toxic chemical PCB.

Michigan's Air Pollution Control Commission Tuesday postponed until its next meeting a decision on whether to allow GM to test-burn the oil, tainted with insulating chemical polychlorinated biphenyl as it passes through electrical transformers. GM wants to burn the oil in a boiler at its Chevrolet Division plant in Bay City.

The auto industry giant has the support of the Michigan United Conservation Clubs — but opposition from plant workers.

"Let's not fool around and take tests in a populated area, a big wildlife area, a fish area," said worker Frank Burns.

Many plant employees have already been exposed to the suspected cancer-causer and are worried about the possible cumulative effect of new exposure, Burns said.

But GM spokesmen stressed they do not think the tests pose any threat to the community health or safety. They said they're awaiting final results of blood tests of workers who may have been exposed to PCB in the past.

The 18-hour test-burn, in which the tainted oil would be diluted with regular fuel oil, has been requested by the federal Environmental Protection Agency, GM representatives said. The only other known methods of disposing of such tainted oil are placement in landfills and destruction in special incinerators.

Some auto workers presented the commission with a Canadian study they said gave reasons to oppose the test-burning.

And Bay City Commissioner John Howard, a United Auto Workers representative, said he was angry that the commission would pursue the permit request after the Bay City Commission took a stance against it.

About 38,000 gallons of PCB-contaminated oil have accumulated at the plant since the commission ordered an end to its burning there in 1977. The oil had been burned for two years.

Wayne Schmidt, representing the Michigan United Conservation Clubs, and Alan Sugarly, spokesman for the American Lung Association of Michigan, said their groups supported the test burn if safety measures were maintained.

Bay environmental office favors it

By Steve Bell

The Bay County Health Department's Division of Environmental Health has come out in favor of the test-burn of PCB-contaminated waste oil at Bay City Chevrolet.

The company wants to burn about 430 gallons of the oil in industrial burners to determine whether it is feasible to destroy larger quantities of oils containing PCB, a suspected cancer producing agent.

Both city and county commissions have come out against such a test-burn. They have argued that it could threaten the safety of area residents.

The Health Department's opinion was sought by both the county commission and County Executive Gary Majeske.

County Environmental Health Division Director Edward Golson said that until Chevrolet and the Department of Natural Resources try a test-burn, no decision can be made whether larger quantities can be burned.

About 38,000 gallons of the oil is stored at Chevrolet, company officials have reported.

Golson said an independent firm familiar with boiler operations could examine the boiler to be used in the burn to determine its efficiency.

But if the burn takes place, an agreement should be made between the city, county and Chevrolet that no other oils beyond the 38,000 presently stored there be burned, Golson said.

Golson noted that the oils were being incinerated for several years before anyone knew that PCB was a toxic substance.

"This department, of course, does have concerns as far as a toxic substance being disseminated into the atmosphere and possibly affecting the population of Bay City," Golson said.

"We do not, however, feel that enough data is present currently to make a judgment on the efficiency of burning such waste.

"It is for this reason that the Bay County Health Department's Division of Environmental Health takes the position that the test burn be made, that the Department of Natural Resources closely monitor that burn, and collect the necessary data to make a judgment as to whether or not these oils can be handled effectively in Bay City Chevrolet's boiler system."

PCB is a heat-resistant chemical used in electrical transformers. It has been found to cause cancer in laboratory animals.

The Environmental Protection Agency banned the manufacture of PCB in May and has imposed strict controls on its disposal.

THE BAY CITY TIMES

TUESDAY, NOVEMBER 27, 1979
6-A

GM woos city on PCB burn

By Jeann Linsley

General Motors officials will meet this week with city commissioners to try to gain their acceptance of a GM plan to burn PCB-contaminated waste oil at Bay City Chevrolet.

GM spokesman David Hudgens said the firm will arrange a meeting and possibly a tour of the facility's boiler room, where 430 gallons of the waste oil would be incinerated.

Although city commissioners have taken no formal action banning the test, they have the indirect power to do so, according to City Clerk Walter Wozniak.

Wozniak said if the city fire marshal determined that the burn would be detrimental to residents, and General Motors appealed the determination, the city commission would have the final say on the appeal.

However, the situation has never come up, Wozniak pointed out.

Commissioners did pass a resolution opposing the test-burn, however.

Skepticism on the part of city officials was at least one reason GM asked the Michigan Air Pollution Control Commission last week for a one-month delay in their decision on the test.

"We're trying to work out a format where we can discuss the matter," Hudgens said. "If it would be helpful for the commission to look at the boilers, we'd be more than willing to do that."

Several plant boiler operators have labeled the boilers inadequate to meet the EPA's guidelines for incineration of PCB, or polychlorinated biphenyl, a fire-resistant chemical proven to cause cancer in laboratory animals.

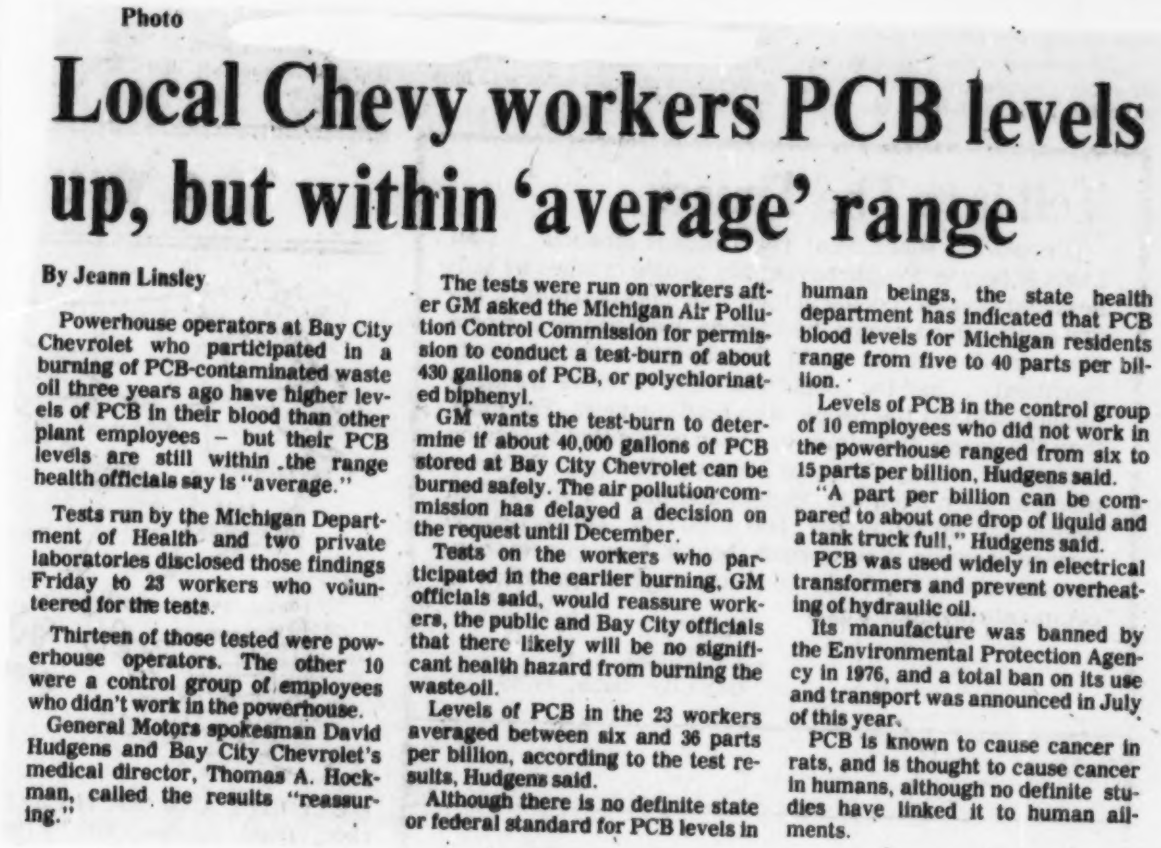
Several defects in the boilers were repaired only after the workers protested to the Department of Natural Resources, and an article detailing the problems was published in The Times Oct. 3.

GM also is awaiting results of medical tests of workers who were involved in incineration of PCB-contaminated oil three years ago, before federal standards on disposal took effect.

The Michigan Air Pollution Control Commission has held three public hearings on GM's request to oonduct the test-burn, and is expected to make a decision at its Dec. 18 meeting.

GM would have to reapply to the commission after the test for approval to burn the rest of the contaminated oil being stored on the plant site. About 40,000 gallons of the oil are being stored at the Bay City plant.

Saturday December 1, 1979 Bay City Times



Photo

Local Chevy workers PCB levels up, but within 'average' range

By Jeann Linsley

Powerhouse operators at Bay City Chevrolet who participated in a burning of PCB-contaminated waste oil three years ago have higher levels of PCB in their blood than other plant employees – but their PCB levels are still within the range health officials say is "average."

Tests run by the Michigan Department of Health and two private laboratories disclosed those findings Friday to 23 workers who volunteered for the tests.

Thirteen of those tested were powerhouse operators. The other 10 were a control group of employees who didn't work in the powerhouse.

General Motors spokesman David Hudgens and Bay City Chevrolet's medical director, Thomas A. Hockman, called the results "reassuring."

The tests were run on workers after GM asked the Michigan Air Pollution Control Commission for permission to conduct a test-burn of about 430 gallons of PCB, or polychlorinated biphenyl.

GM wants the test-burn to determine if about 40,000 gallons of PCB stored at Bay City Chevrolet can be burned safely. The air pollution commission has delayed a decision on the request until December.

Tests on the workers who participated in the earlier burning, GM officials said, would reassure workers, the public and Bay City officials that there likely will be no significant health hazard from burning the waste-oil.

Levels of PCB in the 23 workers averaged between six and 36 parts per billion, according to the test results, Hudgens said.

Although there is no definite state or federal standard for PCB levels in human beings, the state health department has indicated that PCB blood levels for Michigan residents range from five to 40 parts per billion.

Levels of PCB in the control group of 10 employees who did not work in the powerhouse ranged from six to 15 parts per billion, Hudgens said.

"A part per billion can be compared to about one drop of liquid and a tank truck full," Hudgens said.

PCB was used widely in electrical transformers and prevent overheating of hydraulic oil.

Its manufacture was banned by the Environmental Protection Agency in 1976, and a total ban on its use and transport was announced in July of this year.

PCB is known to cause cancer in rats, and is thought to cause cancer in humans, although no definite studies have linked it to human ailments.

local

THE BAY CITY TIMES

SATURDAY, DECEMBER 1, 1979 5-A

Laws regulating toxic chemicals are riddled with loopholes

For vast majority of chemicals, 'we don't know what health risks are,' environmental official says

By Joann Linsley

The foremost environmental issue in the next 15 years will be regulating toxic chemicals, but present laws are riddled with loopholes, says William Cooper, member of the Michigan Environmental Review Board, an advisory board to Gov. William Milliken.

Cooper, speaking Friday at Delta College, said although about 70,000 organic chemicals are known carcinogens (cancer-producing), "for the vast majority of the compounds we don't really know what the health risks are."

And though the Environmental Protection Agency is attempting to regulate hazardous substances, loopholes both in guidelines set by that agency and other legal loopholes have allowed many dangerous substances to go unchecked, said Cooper, a biology professor at Michigan State University.

For example, he said, while the EPA has clamped down on a pesticide known as Mirex, a chemical with the same chemical structure is being used in the automobile industry as a flame retardant.

"It's not regulated because it's not registered as a licensed insecticide," Cooper said. The EPA presently has no mandate to regulate the chemical for uses other than in pesticides, he observed.

Chemical manufacturers have been able to squeak by toxic chemical disposal laws through small subsidiaries which can simply "fold up and walk away" when there is pressure to clean up their operations, he said.

Hooker Chemical Co., a subsidiary of the giant Occidental Petroleum Co., and Michigan-Chemical Co., a subsidiary of the larger Northwest Industries, are examples, he said.

Hooker Chemical, of Montague, last month agreed to an out-of- court settlement of a state lawsuit calling for the firm to undertake a multi-million dollar cleanup of an area around Montague, which was contaminated with more than 100 chemicals.

Michigan Chemical, now called Velsicol Chemical Co., formerly of St. Louis, is still tied up in a lawsuit with the state stemming from the a accidental mixing of PBB with animal feed in 1973.

Both firms have vacated their manufacturing operations.

Another loophole in regulations regarding chemical discharges into municipal sewer systems probably is resulting in numerous dangerous chemicals being dumped into sewers, Cooper said.

If an industry wants to set up an operation in a particular city, he said, it must list all the chemicals it will discharge into public sewer systems.

But the city itself is not required to list the compounds going into the system, he said.

"The vast majority of toxic chemicals are being dumped into municipal systems because the cities didn't have to list chemicals."

And federal standards for toxic chemicals in food aren't much better, he said.

"It's somewhere between a Ouija Board and black magic, that's the state of the art right now."

The Food and Drug Administration's maximum standards for things like mercury, PBB, and PCB, are often arbitrary, he said, and are subject to the whims of pressure groups.

"One of the biggest lobbies against setting higher standards for mercury in fish was Weight Watchers. They didn't want their fish taken away from them," Cooper said.

"You have to take (the standards) with a grain of salt."

Cooper criticized the state Department of Natural Resources for not forcing chemical companies to comply with the law.

"The laws are there. What's not there is the guts to implement them."

Cooper predicted that public outcry over a proposed incineration of PCB at Bay City Chevrolet will be so great that the Environmental Review Board will be forced to do an environmental impact statement on the proposal.

General Motors is awaiting state approval to conduct an experimental incineration of PCB-contaminated waste oil in industrial boilers at the plant. The firm wants to destroy the rest of about 40,000 gallons being stored at the plant, and whether it is allowed to do so depends on the results of the test.

"The issue isn't the test," Cooper said. "That will involve very small amounts. But destroying large quantities is very different."

The board has no legal or legislative powers, he said, "but we have the power to ask questions and publicly embarrass someone if they don't come up with the answers."

Federal standards for toxic chemicals in food are "somewhere between a Ouija board and black magic, that's the state of the art right now."

—William Cooper.

6-A THE BAY CITY TIMES FRIDAY, OCTOBER 12, 1979

Union workers protest PCB test burn

By Joann Linsley

About 100 persons turned out at a public hearing Thursday to protest a proposed experimental incineration of PCB-contaminated waste oil by Bay City Chevrolet.

The four-and-a-half hour hearing was conducted by the Michigan Air Pollution Control Commission, which has granted Chevrolet preliminary approval to conduct a "test-burn" of about 400 gallons of hydraulic waste oil containing the fire-resistant chemical polychlorinated biphenyl.

PCB is known to cause cancer in laboratory animals and is a suspected human carcinogen.

Several members of the United Auto Workers, representing operators of the industrial boilers in which the oil will be incinerated, questioned commission staff about long-term health risks to the community as a result of the burning.

One union representative said he will file a petition to intervene in the commission's permit proceeding and will request that he be provided information on correspondence between the commission, General Motors Corp. and the Environmental Protection Agency.

Lyle Miller, of UAW Local 362, said he will challenge the legality of a public hearing scheduled for Oct. 16 in Muskegon Heights.

The Muskegon Heights hearing was originally the only one scheduled by the air pollution control commission. Last night's hearing at the county building was scheduled only after prompting by State Rep. Jim Barcia, D-Bay City.

Miller said he also will request information from GM and the EPA on the efficiency of the boilers at the plant, and the exact methods of monitoring which will be used.

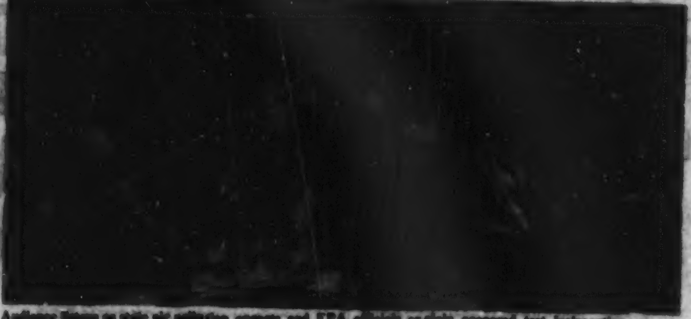
City Commissioner Timothy Sullivan protested to the commission staff that city officials were not informed of the proposed test, and that they should be given more time to review the proposal.

"As far as I know, none of the other commissioners were aware of this before Monday," Sullivan said.

General Motors plans to conduct three separate six-hour test-burns of the oil. The EPA says the company has assured them the condition of the boiler meets all state and federal guidelines for disposal of PCB, but questions still remain about how levels emitted from the burner stacks will be monitored.

"How do we know what concentrations we're going to get?" asked one union representative.

"Is the EPA or the DNR going to guarantee that this isn't going to give us cancer?"


Audience listens as state air pollution experts and EPA officials explain proposed test incineration.

Commission member Gerald Avery said there will be "some PCB molecules coming out of the stack, but that's a very difficult question to answer."

Commission members and EPA staff have admitted there is no real method to monitor directly for PCB emissions. Equipment will be installed in the burner stacks which will remove smoke samples, but it will take several weeks to analyze the samples for PCB content, according to commission members.

During the actual burning, different "indicators" of how much PCB is being destroyed will be used to assure maximum destruction of the compound.

These indicators include carbon monoxide, carbon dioxide and excess oxygen levels, which are indicative of the combustion efficiency of the boiler.

The "destruction efficiency" of the boiler, however, hasn't been proven. The purpose of the test burn, according to the commission, is to measure the boiler's efficiency.

The commission's public comment document (which is required in the permit process) states that the results of the test-burn "are expected to reveal minimum destruction efficiencies of greater than 99.9 percent based on other stack test results and information contained in scientific literature."

R. Michael Jones, of the local office of the American Cancer Society, expressed concern about higher contamination levels from previous burning of the waste oil before the EPA and DNR formulated standards on incineration of the chemical.

Jones called on the commission and the EPA to consider health risks as part of its permit proceeding.

"I would seriously question the competence of any study that doesn't take into account the health effects (on workers and citizens)" Jones said. "What do we know about long-term exposure to airborne PCB?"

Hal Snyder, of the EPA in Washington D.C., said the PCB coming out of the stacks at GM will be very low.

"There is very little direct information" about specific health effects of airborne PCB, Snyder said.

Donald Koenig, manager of the Bay City Chevrolet plant, said the boilers at the site were inspected by the state last week after boiler operators raised concerns about the condition of the burners.

Koenig said the burners passed the inspection.

Several holes in the boiler stacks have been welded since last week, when boiler operators expressed fears that PCB emissions would escape through the holes and contaminate workers, according to boiler operator Andre Day.

If allowed to go, the test-burn will be the first of its kind in the Midwest, and one of only two in the United States.

GM sources say the test amounts to an "experiment" by the EPA to see if the process will work, and if it does, the agency can begin to get rid of massive quantities of PCB-contaminated oils and electric fluids being stored in landfills and at industrial sites around the country.

Hal Snyder. Times Photos

But the EPA contends it is nearly certain the incineration will work, and that the GM boilers meet all the agency's disposal criteria.

GM has about 40,000 gallons of waste oil on-site. Some of the oil was burned before 1977.

The EPA has downgraded its standards for burning PCB since its original rules were handed down in 1977 because several industries said adhering to the strict regulations would be too costly.

The pollution control commission will hold one more hearing Oct. 16 in Muskegon Heights, then decide whether to grant a permit for the test.

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